

# AMERICAN VETERINARY REVIEW.

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## EDITORIAL.

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### AN INTERESTING DISCUSSION.

The members of the progressive Chicago Veterinary Society have undertaken the enormous task of drafting a guide to aid veterinarians in determining a sound from an unsound horse while under professional examination for soundness. The original intention of the Society was developed in the appointment of a committee to formulate a list of the blemishes which are most frequently found at such examinations and to assign them to different categories, such as "soundness," "unsoundness," and "serviceable soundness"—so that there might be uniformity among examiners in their estimates of the quality of animals submitted to them for their professional opinions, hoping thus, possibly, to relieve them from harsh individual criticism and to protect them in case of legal contest. The chairman of that committee, Dr. Hughes, after very carefully going over the field with his associates, reported to the December meeting of the Society that the subject was entirely too large for the committee to deal with, and pointed out 140 blemishes which are the subjects of consideration in the examination of horses for soundness. He then made the very wise suggestion that the whole matter be discussed by all the members in open session, a certain number to be brought before each monthly meeting, and that members be assigned by the President to lead the discussion upon them. This course was adopted, and as a result the REVIEW is enabled to present its readers with the discussion upon

the first two installments, presented at the January and February meetings, and consisting of abnormalities, defects, and diseases in and near the buccal cavity.

That such a discussion by the members of the Chicago Society must be of absorbing interest to their brethren everywhere is self-evident. While theoretical medicine is entrancingly fascinating, nothing so appeals to him who is actively engaged in the practice of veterinary medicine and surgery as subjects connected with his every-day duties ; the elucidation of problems which perplex him during the routine of his visits ; the points of opinion which cause him to wonder if he is less capable of arriving at conclusions than others. To bring forward defects and diseases and discuss them openly, interchanging deductions made by experience and careful study, must be of more service than abstract theories deduced from simple reasoning. It is the practical conception of veterinary societies,—the dissemination of knowledge and mutual benefit, and we are firmly of the opinion that the example set by the Chicagoans is not a bad one to be followed by all other similar associations, especially those in large cities which meet monthly, such as the Veterinary Medical Association of New York County and the Keystone Association of Philadelphia.

That the Society will fail to achieve the avowed object of the monthly discussions does not affect the good which they will do. That no "guide" can be drafted, we are reasonably certain, and that none can be we are thankful. Medicine is an inexact science, and this assertion is more applicable to veterinary than human medicine. If the presence of certain defects constituted unsoundness and the absence of certain other ones fulfilled the requirements of soundness, veterinarians would not be the only persons capable of examining horses to determine these points. A horseman of only moderate ability would be able to perform such services. But the very fact that the determination requires knowledge of anatomy, physiology, and pathology, with ripe experience, makes the opinion of the examiner of value ; gives scope for individual estimate, based upon the abil-

ity of the man. Every veterinarian knows that there can be no hard-and-fast rule by which an animal may be judged. A curb, a splent, a wind-puff or what-not may in one case be an absolute unsoundness ; in another an innocent blemish. The veterinarian is the proper source from which to obtain an opinion as to whether it is a harmful defect or a harmless blemish. And that is why so much of the revenue of the veterinarian is derived from examinations ; and that is why gentlemen in the cities now refuse to consummate an agreement to purchase until the veterinarian's certificate has been obtained. The very uncertainty of the question is the surest perpetuation of the custom.

For the purpose of assisting examiners to give valuable and conscientious opinions in their certificates, the discussion now going on in the Chicago Society is a matter of the greatest importance, and we congratulate them and the profession at large on the opportunity.

#### MEDICAL EDUCATION IN THE EMPIRE STATE.

For the past few months the REVIEW has endeavored to lay before its readers the effects of the law passed by the New York Legislature a few years ago placing the medical schools—medical, veterinary, and dental—under the full control of the Board of Regents. That is to say, the qualification of those applying to matriculate was to be in accordance with the standard set by the Board, and, if admitted, they were again to be examined by the Regents, through their State Examining Board, to ascertain if the school in which they had pursued their professional studies had instructed them sufficiently to meet their conception of the requisite amount of knowledge which they should possess. We have never found fault with this system of supervision of our educational interests, but have applauded it louder possibly than any other medical journal in the State ; we have hailed the advent of higher education with enthusiasm, and have felt no little pride in the fact that the senior editor has devoted his whole professional life with a zeal that only those possessed of his indomitable energy could in contri-

buting his mite to laying the corner-stone upon which is finally to be built the grand edifice of veterinary education. But we have found fault with the extreme and radical method which has been pursued, and we do so in the interests solely of that advancement which has been so ardently sought for and worked for.

We give considerable space this month to an important communication from Prof. W. L. Williams, of the New York State Veterinary College, who plainly states that his views are at variance with those held by us. While his letter bears the stamp of sincerity and logical reasoning, it must be conceded that it would be singular indeed if the opinions he so well expresses did not find lodgment with him, for the reason that the interests which are nearest to him are the ones fostered and encouraged by the statute in question. He fears, from the remarks of the REVIEW, that an effort is making to "wipe out" the entrance examinations; and yet no such effort has been even hinted at in these pages. We have asked for a modification of the ridiculous requirements—in the name of our honored institutions, our integrity, and in the name of higher education; modification, which means perpetuation, and the ability to lift it higher and higher, until it shall reach in time a more exalted standard than that with which we are at variance to-day. But not by that prohibitive bound ("abruptness"—W. L. W.) which sends students flying elsewhere and closes the doors of those schools which labored by love to advance the profession inch by inch, and which have a right to participate in the glories which they have made possible.

The REVIEW exults that such institutions as the one adorned by the coöperation of Prof. Williams have been established, and feels assured that for teaching the higher branches of the medical sciences the private colleges cannot hope to compete; but we do not believe that simply because the State has endowed it with a handsome annuity that it furnishes just cause for that school to insist upon surrounding itself with laws that shall make it the sole representative of education in the State

by crushing every competitor, so that its light may shine the more brightly.

No argument can exist where one side alone is heard, and we welcome the words of the writer for the purpose which they serve, which is to exhibit the object of the law. With a profound air of heroic duty performed, he says that we have placed the standard high and will await the time when the profession shall grow up to it—pointing to the old European countries maintaining such a status as examples of its successful coition, without apparently reflecting that the profession was more than a century old in France and Germany when the seeds were first sown in America to germinate and grow. At the same rate of development his standard will have to tower above the profession for the next hundred years to catch up to the examples he points to.

In the meantime, we have it upon the best of authority that the Regents are appalled at the results of the 48-counts upon the scientific schools of the State, and one high in authority in their councils has made the prediction that at the same ratio of decrease all except endowed institutions will be without students in a year or two. The endowed schools are "successful" if a single student attends regularly, for by that means the quality is high if the quantity is low—and the faculty will be enabled to draw their stipend just the same. With grand facilities, both in appliances and in faculty, free as the air of Ithaca, is it not passing strange that, if the law is going to benefit the profession at large, that there was not an influx of students at the State College, instead of a little handful of students who have to be counted twice in order to make half a dozen?

Modify the law; keep it at a two-year high-school standard until it is reasonable to raise it further; build up instead of tearing down.

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#### DANGERS OF PRIVATE SLAUGHTER-HOUSES.

While in most large cities, slaughter-houses and abattoirs are more or less under sanitary regulations and veterinary

inspections—and, again, while the inspection of meat is carried out in many places according to most correct sanitary conception—it is quite certain that there are many places yet where the slaughtering of animals, and of pigs principally, is not watched by inspectors, and from which, no doubt, various products of a more or less dangerous nature, can find their way to the markets and to the table of the most careful housekeeper. The fact is that, even with the execution of sanitary measures, the same accident may occur. An instance of this: In a large governmental school, where students are boarding, one of them, one fine morning, observed in a piece of sausage that was on his plate, a small, round, whitish mass, the size of a small hazel nut. Leaving aside the peculiar looking breakfast, he took it to one of his professors for examination. It proved to be a tuberculous glandular mass, containing bacilli, which, however, by the process of preparing the sausage, had been killed. Inoculated into guinea-pigs, they were harmless. The investigation made by the authorities of the school brought out the fact that the diseased meat came from a private slaughter-house submitted to veterinary inspection, and where, according to the statement of a butcher, a pig had been killed a while ago which had presented a few similar enlargements when it was dressed.

Moral:—Beware of suspicious-looking round masses which may be found in pigs' meat preparations.

ASSEMBLY BILL 555, introduced by Mr. Pickett, is an effort of the quacks to reopen the registration books of New York State until January 1, 1899, so that any person who has been practicing veterinary medicine for three years prior thereto can register by making affidavit to that fact. While there is scarcely any possibility for such a crime being consummated as is contemplated by this bill, the Legislative Committee of the New York State Veterinary Medical Society should not neglect their duty to make certain that its death is complete and not simply anæsthetized for the time being, to be resuscitated when the effects of their first protest have passed away.

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## ORIGINAL ARTICLES.

### REMARKS ON THE NATURE AND THE DIFFERENTIATION OF THE INFECTIOUS SWINE DISEASES IN THE UNITED STATES.\*

BY VERANUS A. MOORE, B.S., M.D.

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We sometimes hear that there is much confusion concerning the knowledge of the infectious swine diseases in the United States. Perhaps for a brief time early in the history of their investigation, this was the case, but at present our pathologists are, with possibly a very few exceptions, agreed on their morbid anatomy and etiology. There appears, however, to be an element of uncertainty concerning them entertained by a few writers, more especially among those who have not had an opportunity of studying them as they exist in epizootic form. The fact must be admitted, therefore, that while these diseases have been clearly defined in the official reports of the Bureau of Animal Industry, U. S. Department of Agriculture, and by pathologists and bacteriologists in other institutions, there have appeared, both at home and abroad, statements of a contradictory nature which have tended to confuse the reader of the recent literature upon this subject. The difficulty, however, is in the interpretation rather than in the lack of the existence of definite knowledge concerning the nature and cause of these maladies. Although our knowledge of their natural history is far from being complete, no one familiar with the facts, as they are recorded, can feel that American swine diseases have not been carefully investigated.

As the advance in human medicine depends so largely upon the results of comparative and experimental pathology, it is

\* Read before the Section of Pathology and Bacteriology of the British Medical Association at the Montreal meeting, Sept., 1897.

highly important that the nature of the maladies in question should be clearly understood, for among animal diseases there are none which are more analogous to certain human affections than these bacterial plagues of swine. If the suggestion that this subject should be opened for discussion was correctly interpreted it was for the purpose of having some of the essential features of these diseases, as they have been determined by American investigators, again pointed out that their differences and their independent existence could be more fully appreciated. As I understand the situation all elements of confusion will be removed if the following questions can be clearly and fully answered:

1. Concerning the nomenclature of infectious swine diseases in Europe and America. Which of the names given to the diseases of swine are synonyms of hog cholera, which of swine plague, and which represent other affections?
2. Concerning their morbid anatomy. What are the lesions characteristic of hog cholera and what are those diagnostic of swine plague?
3. Concerning their etiology. What are the morphological characters, biochemical and pathogenic properties by which the hog-cholera and swine-plague bacteria can be differentiated?

In a paper of this length it is impossible to answer these questions in detail, but it is hoped that some of the essential truths may be pointed out and that references \* may be given to such papers and reports that any who may desire, can find the entire story, as it is known at the present time, in our most authoritative publications.

In the United States of America two infectious diseases peculiar to swine have been described under the names of hog cholera and swine plague. The third malady—swine erysipe-

\* In citing the literature, reference is made simply to the more important papers giving the results of original investigations which have been made in this country. The criticisms, controversial writings and more popular articles must, for want of space, be omitted. An abstract of nearly all the papers relating to these diseases may be found in the *Jahresbericht über die Leistungen auf dem Gebiete Veterinär-Medicin*, and also in Baumgarten's *Jahresbericht, 1885-1896*.

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las, *rouget* or *Rothlauf*—peculiar to this species has not been found to be the cause of destructive outbreaks, although an organism closely related to, if not identical with, the bacillus of rouget has on at least three occasions \* been isolated from swine. In each of these instances it was obtained from one animal only. Omitting, therefore, from this discussion this possible, but as yet in America unrecognized disease, we pass to the consideration of the two maladies first mentioned.

The investigation into the nature and cause of infectious diseases among swine was undertaken by the U. S. Department of Agriculture more than twenty years ago. Among the reports of the earlier investigators is one by Prof. James Law,† in which we find the lesions carefully described and a list of seventeen names under which the then supposedly single disease existed. Among these are hog cholera, enteric fever, gastro-enteritis, and others suggestive of the external manifestations of the disease such as erysipelas, measles and scarlatina, but none to indicate pneumonia or lung lesions of any kind. In consulting the earlier literature on swine diseases in England, we find practically the same nomenclature. The descriptions of the morbid anatomy are likewise very similar, and writers in both countries, but more especially Dr. Budd of England, have pointed out the similarity of this disease to typhoid fever in man. Up to the time of the investigations about to be mentioned, however, the opinion seems to have been that there was but one infectious disease peculiar to swine in America. In 1885 the investigators in the U. S. Bureau of Animal Industry discovered and described ‡ its specific organism. The disease was given the name

\* Smith, Report of the Bureau of Animal Industry, U. S. Department of Agriculture, 1885, p. 196.

Ibid., 1895-96, p. 166.

Moore, The Journal Compar. Medicine and Vet. Archives, 1892, p. 333.

† Report of the U. S. Commissioner of Agriculture for 1875.

‡ First Annual Report of the Bureau of Animal Industry, U. S. Department of Agriculture, 1885, p. 212.

A summary of the results of the yearly investigations of the Bureau of Animal Industry may be found in the Annual Reports of the U. S. Department of Agriculture for 1884-1893.

swine plague and its organism was designated the bacterium of swine plague.

In the following year (1886) Dr. Theobald Smith \* discovered another bacterial disease among swine. It was found to be similar to the German *Schweineseuche*, both in its morbid anatomy and in the morphology and properties of its specific organism. In naming this disease the Bureau of Animal Industry called it, on account of its similarity to the German *Schweineseuche*, swine plague, and its organism the bacillus of swine plague, and changed the name of the disease described in 1885 to hog cholera and its organism to the bacterium † of hog cholera. The changing of the name of the first disease described from swine plague to hog cholera has been the cause of some criticism and it has been credited with the responsibility of creating confusion. It has, perhaps, led hasty readers to a misinterpretation of these diseases and their relation to those described in other lands under different titles. While the names assigned may not have been especially happy ones, the transfer of swine plague from the intestinal to the lung disease must be considered as a fortunate occurrence and one which tended to simplify and not to confuse.

Dr. F. S. Billings, of the Nebraska State Experiment Station, opposed this classification. He not only refused to accept the change and continued to write about hog cholera under the title of swine plague, but he denied the existence of the swine plague, as described in the reports of the Bureau of Animal Industry for 1886 and subsequently, as an independent disease. The wide dissemination of his publications on this subject has unquestionably been responsible for much of the haziness concerning the distinguishing features of these diseases.

In 1893 Drs. Welch and Clements ‡ read a paper before the

\* Second Annual Report of the Bureau of Animal Industry, 1886.

† In 1888 the genus *Bacterium* was changed to *Bacillus* and this organism is spoken of since that time as the hog-cholera bacillus.

‡ Welch and Clements, Remarks on Hog Cholera and Swine Plague, First International Congress of America held in Chicago, Ill., October, 1893.

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International Veterinary Congress in which they gave a very clear history of the nomenclature of these diseases and in which they adhered to the classification of the Bureau of Animal Industry.

They also included in this paper the results of their investigations of numerous outbreaks of hog cholera, often complicated with swine plague, in the State of Maryland. The very few points in the pathology on which they differ from the conclusions of the Bureau will be referred to in later paragraphs.

In order that this part of the subject may be as clear as possible I have appended a partial list of the names assigned to those swine diseases which have been found to be identical with, or closely related to, the American hog cholera and swine plague. The results of the more important of the large number of special investigations which have been made in both the United States and in Europe to determine these facts have been largely brought together in the writings of Drs. Smith and Welch, who themselves have done most to elucidate our knowledge of these affections.

#### SYNONYMY.

COUNTRY.	DISEASES.	
	Hog Cholera.	Swine Plague.
United States . . . . .	Hog Cholera <sup>1</sup>	Swine Plague <sup>1</sup>
" " " " "	Swine Plague <sup>2</sup>	
England . . . . .	Swine Fever <sup>3</sup>	
" . . . . .	Pneumo-enteritis <sup>4</sup>	
" . . . . .	Pig Typhoid <sup>5</sup>	
Denmark and Sweden . . . . .	Svinpest <sup>6</sup>	
" " " " "	Svinediphtheritis <sup>7</sup>	
France . . . . .	Pneumo Entérite du Porc	
" . . . . .	Hog Cholera <sup>8</sup>	
Germany . . . . .		Schweineseuche <sup>9</sup>

1. Salmon and Smith. Annual Reports of the Bureau of Animal Industry, 1885 and since that time.

Salmon. Special Report on Hog Cholera, its History, Nature and Treatment. *Ibid.*, 1889.

Smith. Special Report on the Cause and Prevention of Swine Plague. *Ibid.*, 1891.

Welch. Report of Investigations concerning the Causation of Hog Cholera. Johns Hopkins Bulletin, No. 1, 1889.

I am not familiar with authoritative statements of the existence of hog cholera or a like disease in Germany. The same is true of swine plague in France. The disease described by Cornil and Chantemesse as being identical with Schweineseuche was found not to be swine plague but probably hog cholera. With swine plague in Germany and hog cholera in France it is probable that both of these diseases may be found in each of these countries. Whether or not swine plague exists in England I will leave for her pathologists to answer.

#### CONCERNING THE MORBID ANATOMY OF HOG CHOLERA AND SWINE PLAGUE.

In the reports of the Bureau of Animal Industry hog cholera is described as occurring in two forms, acute and chronic. In the first the lesions are of a congestive or haemorrhagic nature, while in the second they are characterized by distinctive tissue changes such as the "button" ulcers in the intestines, especially the cæcum and upper colon, enlarged and discolored spleen, enlarged and often haemorrhagic lymphatic glands and usually hepatic and renal changes. Broncho-pneumonia is occasionally present. The chronic form is most frequently encountered.

Welch and Clements\* look upon the formation of the "but-

\* *Loc. cit.*

Smith. Zur Kenntniss der Amerikanischen Schweineseuche. *Zeitschrift für Hygiene*, 1891, S. 480.

Smith. Zur Kenntniss des Hogcholerabacillus. *Centralblatt für Bakteriologie und Parasitenkunde*, Bd. IX. (1891) S. 253.

2. Billings. *Bulletins Neb. Agricultural Experiment Station* 1888. Also many special publications and contributions to various veterinary journals.

3. Brown. Report of the Agricultural Department, London, 1886.

4. Klein. Seventh annual report, Local Government Board, London, 1877. *Virchow's Archiv*, 1884, Bd. XCV., S. 468.

5. Budd. *Veterinarian*, 1865, p. 521.

6. Selander. *Centralblatt für Bakteriologie und Parasitenkunde*, 1888, i. S. 362.

7. Lundgren. Ref. *Jahresbericht de Veterinär-Medicin*, 1889.

8. Metschnikoff. *Annales de l'Institut Pasteur*, VI., 1892, p. 289.

9. Loeffler. *Arbeiten aus dem kaiserlichen Gesundheitsamten*. Bd. I., (1885) S. 51.

Schütz. *Ibid.*, S. 376.

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\* *Loc.*

ton" ulcers as the most diagnostic of the lesions. These, of course, do not appear in the acute type where death occurs in a very short time, and consequently they cannot always be relied upon in making the diagnosis. During the last year we have seen the disease in its congestive or haemorrhagic form, as described in the Bureau Reports, and the diagnosis was confirmed by obtaining pure cultures of the hog-cholera bacillus from the blood, liver and spleen. As pointed out by Smith, this form of the disease is rare. Welch and Clements mention it in cases produced by the intravenous inoculation of pure cultures, but it seems that they did not meet with it in more natural outbreaks. Space does not permit of a more extended account of the morbid anatomy as a wide range of lesions or modified forms is admitted. Suffice it to say, that the tissue changes found in a typical case of chronic hog cholera are quite analogous to those described in a similar case of typhoid fever in the human subject.

Swine plague is considered by Smith\* to be an infectious pneumoenteritis as the intestines are frequently involved, but more often the lesions are restricted, for the greater part, to the lungs and pleura, and hence it is also called an infectious pneumonia. The morbid changes in the intestines usually consist, when present, of a superficial necrosis of the mucous membrane rather than distinct ulcers as in hog cholera. He describes it as an independent disease although frequently complicated with hog cholera. On this point there is some difference of opinion. Billings denies its existence excepting as a secondary infection. Welch and Clements \* have not found outbreaks of pure or uncomplicated swine plague such as occur of *Schweinseuche* in Germany, but they have reported isolated cases and do not doubt the possibility of its occurrence in epizootic form. It was found by them, as it frequently appeared in Smith's investigations, complicated with hog cholera or with lesions which they believed to be due to the hog-cholera bacillus. The disentangling of the lesions of these two diseases has been difficult, perhaps

\* *Loc. cit.*

the most so of any of the problems encountered in their investigation, and it will still be necessary to have the results of other and repeated observations before we can fully describe the range of morbid anatomy possible in either affection. Perhaps of the mooted questions the most important is in regard to the existence of swine plague in epizootic form.

Concerning swine plague as an independent disease the following, and heretofore unpublished observations, are of special interest. In the late fall of 1895 I had occasion to spend a few weeks with Dr. C. N. Hewitt, of the State Board of Health, studying an infectious swine disease in southern Minnesota. During this period we made careful post-mortems, and as thorough a bacteriological examination as it was possible under the circumstances, of one or more animals in each of twenty-nine herds. In many of these cases the lesions were largely restricted to the lungs, the digestive tract being normal. On the other hand, the ventral, cephalic and cephalic portion of the principal or caudal lobe of one, and usually of both lungs, were hepatized. As a rule there was no pleuritis. Pure cultures of the swine-plague organism were obtained, and rabbits inoculated with pieces of the hepatized lung from a few of the animals, died in from 16 to 48 hours of septicaemia, due to the swine-plague bacillus.

In a few cases the lesions varied from this form. Thus in one instance, a pig, of about thirty pounds weight, exhibited a slightly enlarged spleen, haemorrhagic kidneys, and small areas of slight hyperæmia of the mucous membrane of the intestine. The tips of the ventral lobes of both lungs were collapsed. From the kidney, pure cultures of a very virulent swine-plague organism were obtained. Rabbits inoculated with a bit of the cortex of one of the kidneys died in 16 hours and from its organs pure cultures of swine-plague bacteria were secured. In a few herds, especially those near villages where the pigs were fed largely on kitchen refuse, there were a considerable variety of lesions from which *Bacillus coli communis* and other bacteria were isolated, but, so far as I was able to determine, the bacillus of

hog cholera was not present. In these cases the swine-plague bacillus was obtained.

The disease in these herds invariably ran a rapidly fatal course, and in many herds over ninety per cent. of the hogs died. The most pronounced symptom observed was a severe cough which was brought on if the sick animals were forced to run. This, with the refusal of food, were the only ones reported by the owners. The origin of the disease had been traced by several local health officers to a drove of swine which had been brought into the locality and sold. While these observations cannot be considered as conclusive evidence of the singleness of the disease, as a careful bacteriological examination was not made of all of the animals which died in a single outbreak, the occurrence of uncomplicated pneumonia in animals in various stages of the disease in the different herds is highly suggestive that the disease was pure swine plague in epizootic form.

During the past year I have examined several animals from a number of outbreaks of infectious swine disease in the State of New York. In two of these outbreaks the lesions found in the pigs examined were pneumonia with and without pleuritis. The spleens were usually enlarged. The intestines were not affected. The bacteriological examination revealed the presence of swine-plague bacteria, but hog-cholera bacilli were not found. In a few outbreaks there were mixed infections such as described by Smith, and later by Welch and Clements.

These investigations support the conclusions of Dr. Smith that swine plague is an independent disease although it often exists associated with hog cholera. An explanation for the frequency of the latter condition will be suggested in a later paragraph.

To summarize, the differentiation of these diseases by their morbid anatomy is, in typical cases, not difficult. In hog cholera there are ulcers in the intestines with enlarged and often haemorrhagic lymphatic gland, engorged and darkened spleen, and usually changes in the kidney and liver. In swine plague there is more or less hepatization of one or both lungs with or with-

out pleuritis. There may be slight morbid changes in the abdominal organs. In the atypical cases, which the reports show are very numerous, there may be marked variations in the nature of the lesions. In fact, the course of either disease may become so changed that its nature cannot be determined at the post-mortem. In these, and in very acute cases where either disease may become a septicaemia, the macroscopic examination must be supplemented by the results of a bacteriological investigation before a positive diagnosis is warranted. The only final test of the nature of the disease is the character of the bacteria responsible for it.

#### THE BACTERIA OF HOG CHOLERA AND SWINE PLAGUE.

The various accounts of the specific bacteria of hog cholera and swine plague have led to more confusion than those relating to their morbid anatomy. These bacteria have been fully and clearly described in the reports of the Bureau of Animal Industry and in certain other publications. In addition to the original descriptions, the differences between these two species have been pointed out repeatedly by pathologists in other countries, especially in Germany. Notwithstanding, errors have appeared either through accident or misinterpretation. Thus, Schoug \* decided from his bacteriological investigations that hog cholera, swine plague and Schweineseuche were identical. Selander † and Metschnikoff ‡ published some startling results from investigations with the bacillus of hog cholera and which they stated was identical with the bacillus of American hog cholera (Salmon). Their experiments were carefully repeated in the Bureau of Animal Industry with conflicting results. Those of Selander were also repeated by Prof. Welch with a similar outcome. Upon examination of the organism with which they worked, a

\* Ref. Jahresbericht der Veterinar-Medicin, 1889.

† Annales de l'Institut Pasteur, IV. (1890), p. 543.

A report of the experiments made to verify Selander's statements in this article are given in Bulletin No. 6, Bureau of Animal Industry, 1894, p. 97.

‡ Loc. cit.

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culture of which was kindly sent to Dr. Salmon by Metschnikoff, it was found to be the bacillus of swine plague. The results which they had reported were not strikingly different from those which we have obtained under certain conditions, with the swine-plague organism. To understand their results, in the light of those obtained in this country, it is necessary to read swine plague where they have written hog cholera. By doing this, the confusion which otherwise will be caused by their articles on the hog-cholera bacillus will be avoided.

In the last edition of his Text Book of Bacteriology and Infective Diseases, 1897, Crookshank writes that, "the bacillus isolated by Loeffler and Schütz from swine fever in Germany (*Schweineseuche*) has been identified with the bacillus isolated by Salmon and Smith from hog cholera in America, and with the bacillus of rabbit septicaemia and of fowl cholera." Such statements are certainly confusing.

Again we find the influence of Billings' interpretations, published long after the bacteria in question were described, in which he states that the bacillus of swine plague\* is actively motile. During the past year I have received statements from two distinguished bacteriologists of the existence of motile swine-plague bacilli. This is important, for it shows an unmistakable error somewhere. If we have been in the wrong concerning the motility of this organism, we are ready upon sufficient evidence to retract, but thus far we have not observed either independent movement or the organs of locomotion (flagella) on this species of bacteria. It is not surprising, however, that after the appearance of so much literature in which the swine-plague bacillus has been assigned the morphology and properties of the bacillus of hog cholera that confusion should arise.

In comparing these two species of bacteria it is necessary for our purpose to call attention simply to their more essential properties which may be considered of differential value. In order that these may be more easily contrasted I have arranged them in like order in parallel columns.

\* He is writing of the disease known to the Bureau of Animal Industry as hog cholera.

*Bacillus of hog cholera.*

1. Rod-shaped organism with ends rounded, 1.2 to 2.0 $\mu$  in length, 0.5 to 0.8 $\mu$  in width. The size varies according to the stage of growth and division, and the culture media.

2. From cultures it stains entirely. In tissues it usually stains around the periphery with darker extremities leaving a light centre.

3. Actively motile in liquids.

4. From 3 to 9 flagella are demonstrable.

5. Vigorous growth in alkaline nutrient liquids. Less vigorous if liquids are acid in reaction.

6. Moderate growth on potato. (Varies according to reaction.)

7. Distinct growth on gelatin.

8. Saponifies milk in from 3 to 4 weeks.

9. Ferments dextrose with the formation of acids and gas.

10. Does not ferment lactose. Bouillon containing it becomes strongly alkaline. No gas.

11. Does not ferment saccharose. Bouillon containing it becomes strongly alkaline. No gas.

12. Destroyed by moist heat at 58° C. in 15 minutes.

13. Dies in water in from 2 to 4 months.

14. It dies in the soil in from 2 to 3 months.

15. Rabbits injected subcutaneously with 0.1 c.c. of a bouillon culture of a virulent bacillus will die in from 5 to 7 days. Enlarged spleen, necrotic foci in liver.

16. Rabbits inoculated with culture of an attenuated variety live from 10 to 20 days or recover. The lesions are enlarged spleen, and infiltration of the follicles in Peyer's patches.

17. In guinea-pigs the lesions are practically the same as in rabbits. Death occurs in from 7 to 12 days.

*Bacillus of swine plague.*

1. Elongated oval organism 0.8 to 1.5 $\mu$  in length, 0.6 to 0.8 $\mu$  in thickness. The size varies according to the stage of growth and division, and the culture media.

2. From old cultures it usually stains entirely. When in process of division as found in the organs of freshly dead rabbits the extremities stain leaving an unstained central band, "polar stain."

3. Not motile in liquids.

4. No flagella have been found.

5. Growth moderate or feeble in alkaline nutrient liquids. No growth if liquids are acid.

6. No growth on potato.

7. Feeble or no growth on gelatin.

8. Produces no apparent change in milk.

9. Ferments dextrose with the formation of acids but no gas.

10. Does not ferment lactose. No gas.

11. Ferments saccharose with the formation of acids. No gas.

12. Destroyed by moist heat at 58° C. in 7 minutes.

13. Dies in water in from 10 to 15 days.

14. It dies in the soil in from 4 to 6 days.

15. Rabbits injected subcutaneously with 0.01 c.c. of a bouillon culture of a virulent bacillus will die in from 16 to 20 hours. Septicæmia.

16. Rabbits inoculated with a culture of an attenuated variety will live from 4 to 10 days. The lesions are local infiltration of pus cells with pleuritis, pericarditis or peritonitis.

17. Guinea-pigs are slightly less susceptible than rabbits. There is more local reaction. Death occurs in from 1 to 4 days.

18. Pig cutaneous culture. to 3 week lesion a glands.\* few cases

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18. Pigs are not usually affected by subcutaneous injection of small quantities of culture. If the pigs are killed within 1 to 3 weeks the bacilli are found in the local lesion and certain of the lymphatic glands.\* Fatal results are reported in a few cases by these injections.
19. Feeding cultures to pigs which have fasted for 24 hours produces extensive intestinal lesions with fatal results.
20. Intravenous inoculation into pigs causes either an acute septicæmia or a chronic form of the disease in which are produced quite typical round, firm, elevated ulcers.
18. Pigs are not usually affected by the subcutaneous injection of small quantities of culture. The bacilli are not found except in the local lesion. In a few cases fatal results are reported.
19. Feeding cultures to pigs usually produces no effect.
20. Intravenous inoculation into pigs usually produces a septic form of the disease which kills in from 1 to 2 days. Inoculation into the lungs causes pleuritis, usually accompanied with pneumonia.

\* Moore, What becomes of hog-cholera and swine-plague bacteria when injected subcutaneously in small quantities in pigs. Bulletin No. 6, Bureau of Animal Industry, 1894, p. 101.

The results of inoculation experiments with these bacteria are conclusive in establishing their causal relations to their respective diseases. In explaining the differences in results reported by different investigators the method, age, and kind of culture and the degree of virulence of the bacteria used, together with the age and condition of the swine inoculated, must be taken into consideration.

Several varieties of the hog-cholera bacillus have been recognized. As early as 1890 Smith\* called attention to a variety of this organism which was more saprophytic in its tendencies than the form usually encountered. In 1894 he described seven varieties† of the hog-cholera bacillus which had been isolated from swine. These varieties differ either morphologically, in the character of their growth on ordinary media, in the quantity of gas produced in glucose bouillon or in their pathogenesis for rabbits. In addition to these, Smith places the bacillus found by him in aborting mares,‡ *Bacillus enteritidis* of Gaertner and *Bacillus typhi murium* of Loeffler in this group.

\* New York Medical Journal, Nov. 1, 1890, p. 485.

† These are designated as *B. cholerae suis*  $\alpha, \beta, \gamma, \delta, \varepsilon, \zeta, \eta$ . The hog-cholera group of bacteria. Bulletin No. 6, Bureau of Animal Industry, 1894.

‡ Bulletin No. 3, Bureau of Animal Industry, 1893.

Through the kindness of Dr. D. E. Salmon, I received, about two years ago, from Prof. Mereshkowsky,\* of St. Petersburg, a culture of the bacillus which he found to produce a fatal disease in ground squirrels. A careful study of this organism shows that it belongs to the hog-cholera group, and at present I am studying a culture of the hog-cholera bacillus which appears to differ slightly from all those heretofore mentioned. Without entering into a discussion of the varieties of this species, suffice it to say that *B. cholerae suis u.*, as described by Smith, stands, by virtue of the priority of its discovery, as the type. There are closely related to this a considerable number of important bacteria, some of which have been described under quite different names. Although some of them have been found to approach in their biochemical properties *B. coli communis* the bacillus of hog cholera stands as a clearly defined and distinct species of pathogenic bacteria.

The bacillus of swine plague and its varieties have not been so systematically classified. It is of interest to note, however, that the bacilli of rabbit septicæmia, fowl cholera and of certain diseases of cattle are thought to be identical with it. They have not been differentiated in their morphology or cultures. In grouping these bacteria the fact should be recognized that experimentally these bacteria are not interchangeable in their pathogenesis except for the rabbit. Thus an epizootic form of fowl cholera has not been produced with the swine plague or rabbit septicæmia bacilli. Further, it has been shown † that in the upper air passages of healthy swine, cattle, horses, cats and dogs there are bacteria not distinguishable in their cultural characters and their effect upon rabbits from the swine-

\* Centralblatt für Bakteriologie und Parasitenkunde, XVII. (1895.) S. 742.

† Smith. Special report on swine plague, 1891, p. 109.

Moore. Appendix special report on swine plague, 1891, also Bulletin No. 3, Bureau of Animal Industry, U. S. Department of Agriculture, 1893, p. 38.

Fiocca. Centralbl. f. Bakteriol. u. Parasitenk. Bd. XI., S. 406.

The investigations thus far made show these bacteria to be present in 48 per cent. of healthy swine, 80 per cent. of cattle, 50 per cent. of sheep, 16 per cent. of horses, 90 per cent. of cats, and 30 per cent. of dogs.

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plague bacillus. The presence of this organism in the trachea of healthy pigs has been suggested as the cause of sporadic cases of swine plague and it may explain the frequent association of swine plague with hog cholera. What the conditions are by which these bacteria are enabled to produce disease in their host have not been clearly pointed out. The pathogenic organism associated with the lesions in certain forms of bronchopneumonia in cattle differs very slightly from this. In human pathology we find a striking resemblance in *Micrococcus lanceolatus*\* to the swine-plague bacillus. While there are differences between the behavior of this organism and the swine-plague bacillus, its manifold and varied pathogenic possibilities and its distribution in normal human saliva are worthy of notice in this connection.

If we take the rabbit as the animal on which to test the pathogenesis of the bacteria belonging to the swine-plague group we find that those from different sources are very similar. In nature, the bacilli of swine plague, rabbit septicaemia, fowl cholera, and those located in the normal upper air passages of the various species of animals mentioned exist possessed of marked variation in virulence, that is, those which will kill a rabbit when inoculated subcutaneously with pure culture in from 16 to 24 hours to those which require from 3 to 10 days to destroy life. With the variations in the length of time we have corresponding differences in the lesions. Thus the virulent forms produce septicæmia while the attenuated varieties excite a severe purulent infiltration about the place of inoculation and exudates on one or more of the serous membranes. Conversely, it has been shown that rabbits possessed of a certain amount of natural or artificially produced resistance will, when inoculated with a virulent culture, die after the same period of time and with lesions similar to those produced by the attenuated virus in the susceptible rabbit, or, if the resistance approaches in degree to immunity the lesions may be restricted to single or multiple abscesses which develop slowly in

\* Welch Bulletin Johns Hopkins Hospital, III., 1892, p. 125.

various parts of the body. In hog cholera the course of the disease may also be changed. In rabbits the lesions become localized in the digestive tract, and in guinea-pigs there is a formation of nodules, usually beneath the peritoneum, resembling somewhat closely in appearance miliary tubercles. This relation between the degrees of virulence of the bacteria on the one hand and the relative resistance of the animal body on the other has been expressed \* by the simple formula  $d = \frac{v}{r}$  in which  $d =$  the type of the disease,  $v =$  the virulence of the bacteria, and  $r =$  the resistance or degree of immunity of the animal used. By changing either virulence or resistance the type is changed.

A careful study of the details of the methods by which the course of these diseases may be modified shows that there is a marked difference between hog cholera and swine plague in the ease with which they are diverted from their more usual manifestations. Again, when they are studied in their most varied and extreme modifications we find that they differ quite as much as do the lesions produced by the virulent bacteria in susceptible animals. In both affections the modified forms tend to the production of a type of disease simulating that in the larger, more resistant species of animals, such as swine.

Another, and I believe important differential feature, is found in the behavior of experimental animals to immunizing treatment. With hog cholera, rabbits have not been immunized excepting with attenuated living cultures, and then with much difficulty. On the other hand, guinea-pigs are immunized by means of injections of sterilized cultures, sterilized blood of affected animals or the serum from immune animals. With swine plague, both rabbits and guinea-pigs can be made resistant to the strong virus by these methods. The very marked difference in the effect on rabbits of the immunizing agents of the two diseases is noteworthy. Again and still more significant is the fact that guinea-pigs made immune to hog cholera offer no resistance to virulent swine-plague bacteria and *vice versa*.

\* Smith and Moore, Bulletin No. 6, Bureau of Animal Industry, 1894, p. 89.

If time permitted it would be interesting to analyse the arguments which have been advanced to prove the identity of these affections. It would be equally instructive to discuss the various experiences in reference to certain properties of these bacteria, such for example, as the formation of indol, their reaction to the Widal serum test, and their toxins and antitoxins. These, however, are still in the experimental stage. It should be stated, that while it may be possible, under certain restricted conditions, to point out more similarities than differences, I have failed in my task if I have not shown that from first to last these diseases are different. When their investigation is extended by any of the methods of modern bacteriological or pathological research we are impressed with their striking dissimilarities, rather than with their exceptional resemblances. Thus, in the study of their morbid anatomy, the morphology and biochemical properties of their specific organisms, or in the mysterious problems of artificial immunity and resistance, they differ the one from the other. Finally, as I understand them, the diseases known in America as hog cholera and swine plague are separate and independent affectious, and each should have an unchallenged place in the annals of comparative medicine and pathology.

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## CEREBRO-SPINAL MENINGITIS.

By W. J. MARTIN, V. S., KANKAKEE, ILL.

On September 16 of last year, I was requested by Mr. J. G. to go to his barn about 20 miles west of this city to examine a sick mare, he stating that he had recently lost two young horses from the same sickness the mare now had, the nature of which was totally unknown to him. Upon my arrival at the barn, I found a bay mare, aged seven years, suffering from chronic cerebral disease, it being nearly seven weeks since the mare was first noticed to be "off her feed." She died a few days later. It is not this particular case which I wish to call to the attention of the members of the profession, but the common prevalence of this form of cerebral disease in certain sections of

Illinois at various seasons of the year and which causes the death of many horses.

The disease is most commonly seen in districts in which the land used for meadow and pasture purposes is low and marshy and undrained. Mr. J. G.'s barn is situated in a narrow strip of country known as the "Barrens" and for several years past I have met with many sporadic cases of the disease in that vicinity. The geological formation of the "Barrens" is a yellow sandy soil; in places the sand is in ridges and heaps, varying in height from a few feet to more than 20. Interspersed between these ridges, are long, low stretches of marshy undrained land, on which grows a rank coarse wild grass. These bottom lands being unsuitable for cultivation are made to yield a very inferior quality of hay and are also used as pastures for stock. During the spring season the grass in those meadows is more or less covered with water and the detritus washed down by freshets from the surrounding ridges.

It is usually among horses fed exclusively on this kind of hay and grass that we find sporadic cases of cerebro-spinal meningitis, though at rare intervals cases will be met with among horses fed on the best of tame hay that has grown on fertile black soil that has been thoroughly drained.

From my observations there seem to be three distinct stages of the disease, viz., acute, subacute and chronic. These various stages are not by any means clearly defined, the disease in many of the cases having a tendency to become chronic from the outset for several weeks and all at once becoming acute, quickly destroying the animal. Again, the disease will from the first be of an acute form of the most fatal type; the subacute stage cannot in the majority of the cases be differentiated from the chronic except in those cases in which a temporary improvement may take place for a short time.

*Symptoms:*—For several days the animal will appear slightly dull and languid in his actions, has a tucked-up appearance in the flanks, does not perform his usual labor as formerly, lags behind his mate in harness and at times will refuse to eat. The

schneiderian membrane is usually of a dry, dirty, ash-gray color, though in some cases it may be of a bright pink color. The pulse is slow and irregular, having a tendency to roll under the finger and to at times miss or drop a beat. The eyes are dull, the conjunctiva is engorged with blood; vision is much impaired and in the acute cases the animal may be quite blind. The appetite as noted above is capricious in the early stage; at times the animal will not touch food and at other times it will eat the most common refuse of the manure heap or even its own excrement with evident relish. Thirst in the majority of cases is very moderate, some animals going for several days without touching water. It is only in the acute cases that run a rapidly fatal course that I have observed paralysis of the muscles of deglutition. When made to walk the gait is staggering, the hind limbs will be dragged along in the most listless manner; if made to turn around quickly, the animal will reel and nearly fall to the ground—loss of co-ordination. The lips of the vulva in the female are of a pale anaemic color; the sphincter vesicæ is relaxed, permitting the urine to dribble away involuntarily. In the male the penis hangs pendulous and flaccid; the same involuntary escape of urine may be seen in some cases, but not so often as in the mare. Respiration is abnormally slow, so much so that at times it is extremely difficult to count.

When standing undisturbed, the animal will fall into a semicomatose sleep, sometimes with the head pressed tightly against the side of the barn or the stall partition. While in this condition the breathing is stertorous and the animal when aroused suddenly will appear startled, but soon relapses into sleep again. In most of the cases the bowels are obstinately constipated, amounting to complete or partial paralysis. The bodily temperature in the majority of cases is normal, though in the acute cases it often ranges as high as  $106^{\circ}$  to  $107^{\circ}$ . It may also be abnormally low in some of the chronic cases as 96 to  $98\frac{3}{4}$ . The urine in the acute cases is of a clear watery color; and is usually abundant in quantity. In the chronic cases the urine is usually scanty in amount, strong smelling and of a deep yellow

color. The faeces are small and very hard. Sordes may be seen on the teeth, the gums are more or less excoriated, the lips swollen from the animal pushing its head against obstructions. The tongue is dry and covered with a whitish gray coat, its dorsal surface is covered at right angles by rugose folds and furrows. The breath in the majority of cases is extremely foetid, and the animal will grind its teeth in a peculiar manner. Nervous twitching of the lips, the caput muscles and patellar group, is often seen. In eating the animal will often go to sleep with its mouth partly filled with unmasticated hay or grass. In acute cases, tetanic spasms of the muscles of the lumbar and cervical region may be seen, although this condition is rare in my experience.

No season of the year is entirely free from the disease, though it is most common in the early autumn or winter months. At times the disease will appear in certain districts in such a severe form as to amount almost to an epidemic. At other times the disease will confine its ravages to one particular ranch or farm. During the past early autumn such an outbreak occurred on a ranch about 20 miles southeast of this city. Dr. J. L. Tyler, of Chebanse, Ills., who, as Assistant State Veterinarian, investigated this outbreak of the disease, has furnished me with such a full and interesting account of his experience that I give his letter in full :

CHEBANSE, ILL., Feb. 5, 1898.

*Dr. W. J. Martin:*

DEAR DOCTOR:—I will endeavor to answer some of the questions you have propounded: Membranes of the eyes and nose congested, bodily temperature elevated. Out of 30 head that appeared to be affected I picked 8 head from mild to bad cases with temperature in order of severity as follows: 101, 102, 102, 103, 103½, 104, 105, 107. Pulse rather below normal. Respiration in some cases were exaggerated, in others about normal. No post-mortems were held, as none were dead, and the owner would not sacrifice any on the altar of science. Some would die in about two days and one had lived as long as eleven days. When the animals first were affected they died quicker, but when I saw the herd the more acute cases had died to the number of 11 head; the balance affected had more of a sub-acute attack, as the disease seemed to be losing its virulence, especially as the owner had taken the herd to another pasture about ten days before I came.

As to the cause of the disease, it was this: These horses run in a pasture of about 150 acres, partly upland and some timber and about half bottom land along Beaver

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*Etiology*

Creek, which runs through the field. In the spring and early summer this land is overflowed. The stock feed on the uplands until along in July, when the grasses dry out, and then they go below to feed, where the grass is green. They soon begin to show symptoms of the disease.

I think the germ of the disease is developed on the grass in the form of a parasitic fungus, due to fermentative changes which were produced by the long-continued moisture, followed by the extreme heat, the two great factors in any fermentative change being heat and moisture. There were about 110 head; 11 died, and when I was there they had 20 head that were visibly affected—dull, listless in appearance, staggering gait, difficult mastication and deglutition, fever, pulse rate low, some were very stupid. The acute cases that died before I came would appear thus, then go down and delirium become extreme, and die without getting up again. The sub-acute cases were up and down, the extreme delirium not well marked, as they usually died quite quietly. In some of the cases the eyes were quite staring, and the eye was not affected when the ball was touched by the finger, reflexes being lost. The muscles of the tail had lost their tone, the tail being limp on manipulation. I put the animals on the enclosed prescription for the eight head in the barn, which were the worst; separated all the sick ones, and put them in a good meadow, where the hay had been cut off; the others, which appeared well, I put in another upland pasture.

R	Tr. ferri chlo.,	1 lb.
	Fl. ex. nux,	$\frac{1}{2}$ lb.
	Fl. ex. zinziber.,	$\frac{1}{2}$ lb.
	Quinine,	$\frac{1}{2}$ lb.
	Whisky,	1 $\frac{1}{2}$ C.

Mix. Sig. Three ounces three times a day.

The man agreed to write me the results, but I never heard from him, so know nothing of the results. Hoping this may be of some benefit to you I am, yours as ever,

J. L. TYLER.

As the disease advances the animal will become more and more comatose; standing with all four limbs wide apart, and being moved up and down automatically as if walking. The delirium will recur at short intervals; the animal will at times place the point of the sternum against the manger and in this position will push forward with all the strength of the body. More often the head will be placed against the barn wall and in this position the animal will push and batter its head until it is a sight to behold. The delirium may last for several days before death puts an end to the poor brute's sufferings. Animals affected with the disease will usually live from 10 to 30 days, and in some of the milder cases they may linger on for several months. It is rare, even for the very worst cases, to die before the tenth day.

*Etiology:*—Notwithstanding the great advance made during

the last few years by both human and veterinary medicine, the origin or cause of this destructive disease is still wrapped in profound obscurity. In human medicine it is still called a miasmatic contagious malady, and, if I am correctly informed, the specific microbe which causes it has not yet been discovered. In the horse, Dr. E. C. Schroeder, in 1892, investigated for the Bureau of Animal Industry an outbreak among horses in South Dakota called "Bottom Disease," which, from the symptoms given, I believe to have been sporadic cerebro-spinal meningitis. Dr. Schroeder held several post-mortem examinations, and forwarded to the Bureau for microscopical examination parts of the liver and spleen. Aside from some interesting pathological changes of a cirrhotic nature in the structure of the liver, the examination revealed nothing. That cerebro-spinal meningitis is to be viewed as an interstitial inflammation of the brain and spinal cord, together with their meningeal coverings, due to the ingestion into the system of certain low forms of either animal or vegetable life, such as protozoa or fungi, taken into the system by the food, drinking water or the breathing of miasmatic night air, seems to be the general opinion among veterinarians who have clinically investigated the disease.

If due to a fungus this is no doubt accumulated upon hay or grass during the wet season, and, being eaten, the fermentation of digestion there is carried into the blood-stream the toxin or ptomaine thus generated. This toxin produces great chemical changes, both upon the blood and great nerve centres of the body.

It is well known that low microscopic forms of fungi and protozoa are the exciting cause of many diseases in men and animals. The so-called "Leeches" or Bursattee sores seen on horses in this country and India are due to the presence in the blood of protozoa. Late researches into the cause of malarial fevers in man have shown that the primary cause of this disease is the presence in the blood of minute protozoa, the *Plasmodium Sanguinis*.

*Malarial* :—The manner in which this germ gains entrance into the circulatory system of man is as yet unknown, but that

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it is through the food or drinking water or the breathing of miasmatic night air, seems to be the general opinion among medical men.

*Treatment* :—So long as the true nature of the disease is unknown, our treatment of it must be purely empirical. No method of treatment has proved successful with me in the majority of cases, though nearly all forms of medication have been employed. Purgatives, such as aloes, raw linseed oil in combination with oleum terebinth and oleum tiglii in heroic doses, seem not to have the slightest effect in moving the contents of the paralyzed bowels. Enemas of warm water containing a strong solution of chloride of sodium have given the best results for this purpose. Nerve tonics, such as strychnia subcutaneously or per orem, do not seem to have the slightest beneficial effect. It is simply astonishing the amount of strychnine, arsenic and other potent drugs a horse can take with almost perfect immunity when suffering from this disease. Some cases at first respond in a remarkably favorable manner to large doses of the fluid extract of gelsemium, but after taking it for a few days this drug also seems to lose all physiological action on the animal.

*Spontaneous Recovery* :—Occasionally an animal will recover from a severe attack of the disease without any medicinal treatment whatever. The animal may afterwards eat well, and will even become quite healthy; the mind will become clear, and to all appearances the animal will be restored to perfect health, with the exception of loss of motor power in the hind extremities, which renders the animal useless for any kind of hard labor. This loss of motor power is a sequelæ of the intense inflammation of the spinal cord and the effusion of serum between the spinal membranes.

*Post-mortem Appearances* :—On removing the skin, large areas of the subdermal tissue are occupied by masses of coagulated serum of a yellowish color. The blood vessels contain blood of a thin, dark color that is non-coagulable. Numerous red or bloody spots are seen on the external coat of the dura

mater of the brain and spinal cord. Considerable effusion of serum is found in the arachnoid space. In chronic cases this serum is usually of a red color; in acute cases, it is often of a yellowish color and contains broken-down inflammatory débris, clots of fibrin, red blood corpuscles, etc. The pia mater shows evidence of intense inflammation and is often found closely adherent to the spinal cord by plastic exudation. The blood vessels surrounding the brain and spinal cord are congested and contain dark-colored blood. The spinal cord is of a soft, semi-gelatinous consistency and is usually of a dark red color.

The stomach usually contains a small amount of food, dry and slightly impacted. The lungs are œdematosus in the chronic form, and hypostatic congestion is present. In the acute form lobular pneumonia of an intense type is found in the anterior lobes of the lungs. Serum in considerable amounts is often found in the chronic cases, while in the acute or sub-acute ones it may be entirely absent. The intestines are covered in patches by areas of congested spots of a dark color; these congested areas are also found in the serous covering of the intestines. The colon is often impacted with dry food. In some cases the intestines will contain large numbers of parasites, such as *S. Armatus*, *S. Tetracanthus*, and *Acaris Megalocephala*. In some cases reported to me, large numbers of *G. Equi* and quantities of sand are said to have been found in the stomach and intestines. Of the former, I have seen a few present in many cases, though not in sufficient numbers to cause any harm. The latter condition I have never met with.

The liver is enlarged and much engorged with dark colored blood. The muscular tissue showing most markedly by its yellow color and the patches of yellow serum under the skin that this organ has been the seat of severe structural change. In the chronic cases, cirrhosis is a common condition of this gland. The spleen is enlarged, much engorged with blood of a dark color, and the structural substance of the organ is quite soft. The emaciation of the body both in acute and chronic cases is very marked, marasmus.

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## THE PHONENDOSCOPE IN MEDICAL AND VETERINARY PRACTICE.

BY PROF. A. VACHETTI, OF THE UNIVERSITY OF PISA.

Several medical and veterinary journals, foreign as well as Italian, have spoken of this new means of diagnostic examinations which has been invented by Italians, Professors Aurelio Bianchi and Eugenio Banzi, of Florence. As yet the apparatus is little known by us, though it well deserves to become more popular in general practice as well as in the medical schools on account of the remarkable service it renders.

It is a metallic tambour (C), covered on one side with a very thin vibrating sheet of ebony which renders the instrument very sensitive to all sounds. Inside of the drum is a little vibrator. On the opposite of it are two apertures, into which two little metallic tubes are fitted.



To these are attached rubber tubes, at the extremities of which are perforated, olive-shaped buttons of wood.

After the instrument is placed on the part to be examined, either upon the skin or over the clothing, the examiner taking care not to produce friction while applying the phonendoscope, he inserts the two olive-shaped buttons into his ears, in such a way that they penetrate well into the external auditory canals, and that the perforations of the olives have the same direction as the canals. Then he will perceive very distinct, by the much increased normal and pathological sounds of the heart, the lungs, the nostrils, the larynx, the trachea, the pleura, the pericardium, the veins and arteries, the cranium, the stomach, the intestines, the peritoneum, the articulations, the tendons and other sounds, according to the parts under examination.

To diminish the excessive intensity of the sounds, one places

on top of the phonendoscope the circular disk B, which is also covered with a sheet of ebony. In order to examine a very limited point, for instance, a cardiac orifice, a limited part of the lungs, or in case of fractures, in order to make an auscultatory percussion or to define exactly the area of an intestine, one only has to screw the little metallic rod (A) to the centre of the disk B and press the ebony button on the part to be examined.

The disk which receives the waves of sound can be applied simply with its sheet of ebony to the surface where the auscultation is to be made, if the surface is horizontal; but it is always better to press the surfaces well against each other with one hand, which is indispensable when the parts under examination are not horizontal. One hand of the examiner is free and the length of the elastic tubes permits him to remain at a certain distance from the auscultatory surface and from the patient, which is convenient and pleasant for both.

Or, one can let an assistant compress the disk and the practitioner has both hands free for any emergency, and especially to make auscultatory percussion. One must always avoid the friction of the instrument and of the tubes against each other; otherwise the noise caused by it would disturb the auscultation.

I have repeatedly asserted that the best way to hear short sounds and murmurs, for instance, those of the heart, is with both ears. For prolonged murmurs and sounds, such as the breathing, the respiratory murmur and others, it is better with one ear only. But the phonendoscope renders it very easy to examine with one or both ears, according to what is most indicated.

The apparatus of the Professors Banzi and Bianchi, which I have applied several times to persons and animals, is very valuable for schools as well as in the practice, because it permits two persons a simultaneous auscultation on the same point, each of them using one auscultatory tube, and therefore it is of greatest advantage in semiotic lessons and in consultations.

As it increases the sounds, it is a real resource for hard-hearing people; therefore we can also consider it an excellent acoustic ear-trumpet.

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It gives splendid results in the diagnosis of pregnancy, as it transfers to the listener's ear the foetal heart sounds as well as the so-called "placental bruit" inside of the woman.

But where I found the phonendoscope by far superior to all other instruments of auscultation, is in the auto-auscultation. I will not argue whether it is advisable for the patient to auscultate his own heart or lungs a. s. f.; I also admit that every physician and every veterinarian is a bad patient, and will become worse when having the means of examining himself with little inconvenience, while lying on his sick-bed. In a very short time he will become a hypochondriac. But in everybody's mind and heart is the desire to "know yourself," and everybody, little as he may be fit for it, likes to control his own diagnosis and the assertions of the treating physician. For such cases the phonendoscope is of great value.

Besides several colleges there are numerous physicians with whom I have used this instrument who desired to purchase one for their individual account, and I have directed them to\* "Casa Successori Martin Wallach, Roma, Corsa 262, Palazzo Odescalchi," who have acquired the sole rights of these instruments.

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## REPORTS OF CASES.

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*"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."*

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### GENERAL FATTY DEGENERATION OF THE MUSCULAR SYSTEM.

By E. L. VOLGENAU, D. V. S., Buffalo, N. Y.

Many interesting and instructive conditions are encountered in the post-mortem work carried on under the direction of the U. S. Bureau of Animal Industry. A native steer, grade Durham, two years old, affected with fatty degeneration of the entire muscular system, recently came under our observation. This interesting pathological condition was not confined to one group of muscles, but every muscle of the body seemed to be af-

\* The American representatives of Martin Wallach, Roma, are George P. Pilling and Son, Philadelphia.

fected. Our attention was first called to the animal by its peculiar gait, manifested by dragging the hind extremities, as though they were paralyzed. The entire act of locomotion seemed to be attended with considerable difficulty. Suspecting something wrong, the animal was tagged with a metallic tag, for the purpose of identification, post-mortem. The post-mortem examination as far as the viscerae were concerned was negative. All the organs were seemingly healthy. There was no more fat deposited upon the viscerae than in the average fat native steer slaughtered at this establishment. It was not until the carcass was quartered that the peculiar fatty condition of the muscular structures was observed. What is termed by butchers the "rib roasts" (muscles of the dorsal region) were found to be composed of a brittle fat, of the consistency of suet. In portions, notably between the eighth and tenth ribs, traces of muscular tissue were discoverable; but even here there was so much infiltrated fat that the muscles appeared pale and waxy.

Most marked were the lesions in the hind-quarters. The gluteal muscles, notably in the anterior, external and internal regions, were simply clumps of fat, with not even a trace of muscular tissue discernable to the naked eye. Slices were prepared and placed under the microscope, and gave the characteristic appearance of fatty degeneration.

Upon a rapid examination of veterinary books at our disposal, we have failed to find an account or report of a like case as that briefly described above. The disease which "human physicians" term "Pseudo-hypertrophic Muscular Paralysis" seems to be the same pathological condition.

#### LYMPHANGITIS AND HYPERSTROPHIED HOOF FROM CALKING.

By W. L. WEST, V. S., Belfast, Maine.

The REVIEW arrives with unfailing regularity and its advent and perusal form one of the bright spots in my life. I wish to thank you for the many good things you have given us in the past year, and know they will be continued in 1898.

I had a somewhat unusual case not long since and will give you a brief account of it.

Subject, a bay gelding of gross, plethoric, lymphatic temperament. I was called to treat him for furuncles of the superior cervical region, occasioned partially by a bad fitting and dirty harness and partly from an irritable and badly nourished skin. I advised rest; gave a liberal purge, poulticed, and later incised the boils, instructed the owner to feed no grain and give

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liquor arsenicalis,  $\frac{3}{4}$  ss, ter in die. I saw the case every day for four or five days, and it was quite a surprise to me one morning to find my patient with a case of acute lymphangitis of the left hind leg. Some careful inquiries elicited the information that the owner from the kindness of his heart had disobeyed my instructions and had been giving the horse twelve quarts of corn meal per day (to keep his strength up). I felt somewhat chagrined at not receiving better treatment from the owner, but said nothing and abstracted three quarts of blood from the jugular, administered a capsule containing aloes pulv.,  $\frac{3}{4}$  vi; calomel, gr xx, and told them not to allow any exercise, and I would see the case next morning; but, alas, an officious friend got in his work and advised the owner that all that ailed the horse was "a sprain," and he had better give him plenty of exercise and he would work out of it.

When I called next day to see the horse the owner's wife gave me the above facts in a somewhat shamefaced way, and, like Othello, I found my occupation gone.

*Sequel.*—After about three months I was making my rounds of the milk farms on an inspecting tour, and in a vacant field saw my whilom patient. The proprietor of the farm said he had been given to him and wanted to know if I could do anything for him. I made a careful examination and found some thickening as a result of previous lymphangitis, but the animal was very lame in the opposite foot (right one). Upon looking at the foot the sole was found to protrude enough to make the convexity touch the ground before the walls. I advised destroying the horse, and told the owner to bring me the leg and foot (right one), which he did, and I made a median longitudinal section as near through the centre of the os pedis as possible, and found that bone, instead of being in an oblique direction, nearly perpendicular, caused by a growth of horn backward from the inner face of the front wall about the upper third, with an area of hypertrophied coronary substance immediately above it, showing much cicatrical tissue and evidence of many punctures by the heel calk of the opposite foot. I have since learned that the horse had a confirmed habit of standing with the left heel resting on the right coronet.

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#### SANMETTO IN CANINE CYSTITIS.

By G. L. BARNABY, V.S., Mason, Mich.

I am more thoroughly convinced each day of my life that it is impossible for a man to keep fully abreast with the great

advancements made in veterinary medicine and surgery. Old fads and foolish superstitions have steadily given way for a new and intelligent order of things, and he who fails to at least attempt to keep posted is soon justly relegated to a place among choice specimens of antiquity. Investigators into the causes of pathological lesions have made gigantic strides, and means for prevention or cure have been discovered, till many of the diseases heretofore deemed grave, if not absolutely fatal, are not only relieved, but cured, by some of the newly discovered remedies. Foremost in the ranks of investigators is he who has given to the medical and veterinary practice that great genito-urinary remedy, Sanmetto. But a few months ago it was brought to my notice, and in every case where I have used it the results have been most gratifying.

Especially do I find it so in cases of cystitis in dogs. In no case have I tried it, or known of its being tried, without accomplishing a perfect cure, and that, too, in a very incredibly short period of time. Suppurative pyelitis and haematuria give way before its exhibition quicker and surer than by any other course known to our practice. The urine clears up after a few doses—a proper amount is secreted and at proper intervals. The soreness and tenderness disappear as if by magic, and the animal soon regains natural vigor under its tonic effects. Azoturia in horses yields just as readily—less than two ounces usually neutralizes the hypuric acid of the urine, and smaller doses following allay the irritation along the urinary tract and assist in the process of elimination of the poisonous materials of the system. Genito-urinary troubles in the brute creation have lost much of their terrors since the Od Chem. Co. has given to the profession their Sanmetto.

Encouraged by its action in the brute creation, I began asking myself why it would not relieve the aches and pains that had become chronic in my own case, and, emboldened by the experience of medical practitioners, I began its use upon myself, and the result is I am to-day a well man. I wish the value of Sanmetto could be more generally known to our profession, for in it I feel sure I recognize one of the greatest boons to our profession as well as to humanity at large. If this shall lighten the burdens of my brother practitioners, and they should recognize, like myself, that the difficulties standing in the way of a cure in many of those obstinate genito-urinary troubles are removed by the use of Sanmetto, the object of this paper will be gained.

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**REMOVAL OF THE PREMAXILLA.**

By J. A. McCrank, D.V.S., Plattsburg, N. Y.

On December 9th I was called to S. F., to see a horse owned by Mr. L. The animal had been working on a threshing machine, when his mate crowded him over the side onto the floor. The tying was so firm and so long as to permit his upper incisors to come in contact with the arms of the flywheel, which struck him each time it passed around. I found the bone fractured in many places, so that I concluded it was impossible to save the jaw. I decided to remove the pieces and save channels of nutrition. The palato-labial artery was not injured, though I was obliged to saw the bone through the foramen to relieve the blood vessel. The canine teeth and incisors were removed with the parts of the bone in a line with the canines. The wound was freely washed with antiseptic solution. The head was tied up so that he could reach no food, being allowed soft mashes for ten days, once per day, after which the wound was thoroughly cleansed. On the fifth day, accidentally, on purpose, the horse got some hay, and he handled it so well that the owner decided to let him have all he would eat. He was at work in eight days, and has been doing well ever since.

This case is reported because I have never met with such a report in the journals; consequently it is for the benefit of the younger members of the profession or those who are inexperienced. The older brothers may look on it as a simple case, but I tell you the natives of S. F. think I am — and quite a surgeon. Possibly there are none of our veterinarians so young as I am that may not need this report, but all will know that I learned so much from practice.

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**EXTRACTS FROM EXCHANGES.**

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**GERMAN REVIEW.**

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By W. V. BIESER, D. V. S., New York City.

**TREATMENT OF CHRONIC OBSTIPATION WITH BEECH-WOOD CREOSOTE.**—Von H. announces that beech-wood creosote in doses of a few drops after meals in a glass of water has remarkable influence in chronic obstipation in human practice. He recommends that gradually increasing doses from 1 to 8 drops, t. i. d., be given. He attributes his success with the remedy to the antiseptic qualities of the remedy, which inhibit

the formation of the toxins which paralyze the muscular coat of the bowel, thus preventing the habitual obstipation. Hence the author recommends this treatment highly in dog practice.—(*Berl. Thierärzt. Woch.*)

A NEW TREATMENT FOR CHRONIC LAMENESS OF THE SHOULDER.—Tempel, of Leipzig, in issue No. 31 of the *Deutsche Thierärztliche Wochenschrift* for the year 1897, recommends a very simple treatment for chronic rheumatism of the shoulder, viz., one injection subcutaneously into the region of the shoulder of the following: Morph. hydrochlorate, 0.2; atropia sulphate, 0.05; aquae dest., 20.00, for horses of medium weight. After the fourth day following the injection the lameness, provided the diagnosis of its cause is correct, is said to promptly and permanently disappear. Such a result he obtained in ten horses thus injected. The author in order to test this treatment gave the above injection according to directions in the case of a four-year-old horse suffering from chronic rheumatism of the shoulder with remarkable success, the lameness disappearing permanently after the fourth day. The history of the case was as follows: Off and on, even if not continuously, for a year the horse after severe exertion went lame on the off fore leg. Careful examination elicited shoulder lameness, with marked atrophy of the muscles in that region; otherwise local examination elicited nothing positive. Hence the diagnosis of chronic rheumatism of the shoulder was rendered fairly certain. It disappeared under the above treatment. It would be a great boon to the veterinary profession were such an obstinate affection as the above to give way to such a highly simple procedure. The treatment ought most certainly to be brought into vogue more extensively.—(*Berl. Thierärzt. Woch.*)

OLEUM CANNABIS AS A GALACTIFUGE.—The author says that the veterinarian is often compelled to check the secretion of milk; for example, in bitches whose offspring have either been taken away or have died; in mares that refuse to suckle their young, etc. Up to this time no efficient remedy has been promulgated that will accomplish the purpose above desired. He has used the oil of "cannabis sativa," used also for this purpose in human practice, with success. In horses the oil was given once daily in the shape of warm inunction, the udders having been freely milked beforehand in case of marked congestion of the same. The quantity diminished after the first inunction and in three to five days the milk usually disappears entirely, and at the very latest after eight days, no matter whether the inunction was

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discontinued after the third or after the fourth day. The skin of the udder is not appreciably changed by the inunction, the scaling off of the epithelium being attributed to the energetic rubbing. At any rate, without any other medication and without any alteration in the diet, the galactifuge properties of the remedy were established. In dogs, to prevent their licking off the oil, a cotton compress was applied over the udder. Here also, as in horses, after preliminary emptying of the udder, whether the inunction was stopped on the third or on the fourth day the milk secretion stopped usually on the fourth or fifth day. Only in one case did the milk secretion continue until the seventh day. The skin was unaffected by the remedy. Changes in diet or administration of other remedies were here also not called into play to establish the galactifuge properties of the remedy.—(*Berl. Thierärzt. Woch.*)

THE VALUE OF HYDRASTIS CANADENSIS IN BRONCHIAL CATARRH.—After six years of active trial of the remedy the author discovered: 1st, a marked diminution of the paroxysms of coughing; 2d, an appreciable easement in the expectoration; 3d, an influence upon the secretion of the bronchial mucous membrane in such a way that from being purulent in character, the secretion became nearly if not altogether mucoid in character; 4th, a marked decrease in the physical signs attendant upon a bronchial catarrh. The author places the anticitarrhal qualities of hydrastis far above those of the other bronchial remedies and its sedative effect so marked that he entirely disregards the use of opium and its alkaloids in the treatment of consumption in favor of this remedy. He gives 20 to 30 drops of the fluid extract in sugared water four times a day to adults; its alkaloid hydrastin is not so reliable.—(*Berl. Thierärzt. Woch.*)

#### FRENCH REVIEW.

VOLVULUS IN A HORSE—POST-MORTEM RUPTURE OF THE STOMACH [*By Mr. C. Lesbre*].—A twelve-year-old gelding was taken ill and died in a little over 24 hours. He had acute, continuous colics, which increased rapidly in severity. The pulse became weaker by degrees, his countenance contracted, the glare staring. He ground his teeth. The skin and extremities were cold, and here and there covered with perspiration; the conjunctivæ cyanotic. Under the influence of eserine, pilocarpine and rectal injections, a few gaseous evacuations took

place ; there was loud and repeated borborygmus. The horse laid down frequently and assumed the dorsal position, in which he seemed to have some relief. A few hours before death, the symptoms seemed to subside, but it was only the precursor of death, which took place soon. At the post-mortem, besides the lesions of volvulus, there was found a rupture of the stomach on its anterior face, which presented the characters of a lesion which had taken place after death.—(*Journ. de Zootechnie, Sept. '97.*)

CARDIAL DILATATION WITH INSUFFICIENCY OF THE ORIFICES—RUPTURE OF THE POSTERIOR VENA CAVA.—In the October number of the *Journal of Zootechnie*, of Lyon, Prof. Cadeac reports minutely an interesting complicated case of heart hypertrophy, in which the organ weighed 6 kilogrammes (12 pounds), and, while it had doubled in weight, it had trebled in size and in capacity. The auriculo-ventricular, the arterial openings of the base of the ventricular mass, and that of the vena cava, were considerably enlarged, and, though they presented no marks of inflammation nor any growth, they were insufficient and the closed wrist could be introduced through them. The diameter of the ventricles was in proportion to that of the openings and the auricles presented also similar alterations. The arterial system and the venous network of the posterior part of the body were entirely empty ; but in the anterior part, the venous system was largely developed and in appearance doubled in size. The kidneys and liver, enormously large, were gorged with blood. At the point of entrance of the posterior vena cava over the anterior face of the liver there was a laceration involving both the vein and the hepatic substance. The animal, aged nine years, was in good condition, used for comparatively light work, and had presented for some time evident symptoms of cardiac affection, such as difficult respiration on the slightest exertion, acceleration in the beatings of the heart, jugular pulse, characteristic bruits at auscultation, threatening asystolic phenomena, oedematous swellings of the extremities and dependent parts of the body, loss of appetite, of flesh and marked signs of hydrothorax and ascites.

THE INFLUENCE OF THE NATURE OF FOREIGN BODY IN THE INTESTINAL OBSTRUCTION OF DOGS [*By Mr. A. Morey*].—An eight-months old Danish pup has the bad habit of picking up and swallowing every piece of cord that he meets. One day he refuses his food, is constipated, and vomits frequently. He is in bad condition, the mucous membranes are pale and somewhat yellowish, the abdomen is tympanitic ; there is much

prostration. By abdominal palpation, a mass is felt, slightly compressible, about 10 centimetres (5 inches) long, upon which pressure is painful. Surgical interference is decided upon, and laparotomy performed. With difficulty, after incision of the intestines, the greatest part of a piece of cord, knotted in several places, is extracted by careful tractions. But for fear of too much laceration a very small piece is left in the intestines. The wounds were treated antiseptically. The dog did well for two days, but ultimately died. Two ulcerations were found in the intestines back of the part which had been incised for the operation, and which were due to the peristaltic contractions of the organ, which, by rubbing against the remaining piece of cord, had been cut through. The wound of the intestines at the seat of operation was firmly closed. The piece of cord extracted when unrolled measured 6 metres (about 6 yards) in length.—(*Journ. of Zoot.*, Oct., '97.)

HYPERTROPHY OF THE PROSTATE AND PERINEAL HERNIA OF THE BLADDER IN A DOG.—A twelve-year-old fox terrier, writes Mr. Caronyiau, was brought to me in great pain; its back was arched, its abdomen contracted, and it made useless efforts to micturate. Between both ischii there was a round swelling extending from the perineum to the base of the tail. This swelling was as big as the fist; it pushed the anus upwards and to the left; it was somewhat soft, not very painful, and fluctuated. Rectal exploration revealed a firm, hard mass, situated at the anterior part of the pelvis and behind it a tense pouch, full of liquid. The mass was the hypertrophied prostate, the pouch was the bladder. A catheter introduced in the urethra could not enter the bladder. Puncture of the external tumor gave escape to normal urine. This gave temporary relief. The dog was destroyed the next day. At the post-mortem the prostate was found largely hypertrophied and the body of the bladder was turned backwards, and its neck acting as a hinge, the anterior extremity of the organ had become posterior and was in contact with the skin of the perineum.—(*Journ. of Zootech.*, Oct., '97.)

ABNORMAL RETENTION OF THE FŒTUS IN A COW [By Mr. P. Leblanc].—The owner of the cow is sure that his animal is in calf, but lately he cannot find it by manipulation. He fears that he has made an error, as the cow continues to give a quantity of milk superior to what she ought to, if parturition was close at hand. The author by physical signs cannot detect the presence of the calf, but by rectal examination finds on the left

side a hard, globular mass, which is easily defined, is of the size of a man's head and is adherent to another tumor as big as the fist, possibly the head of the expected foetus, which is evidently dead. The owner was then informed that this state of affairs might last for a long time or that the cow might at an unknown time deliver. Four months after the cow was taken with pains and the owner extracted, from her vagina, a mass of bony consistency, weighing between fourteen and sixteen pounds. It was the foetus which had remained in the uterus exactly 390 days.—(*Jour. of Zootech.*, Oct., '97.)

PURULENT INFECTION FOLLOWING CHRONIC ENDOMETRITIS [By Mr. Jacolin].—This case is reported with the object of showing that in practice a practitioner is not justifiable in overlooking the possibilities of a purulent chronic metritis, even if it had existed for some time and to all appearances compatible with perfect health. The subject was a mare, 13 years old, which at different times had had a discharge from the vulva, which was considered as harmless and did not interfere with her work, until at last she was again attacked, when the flow was more abundant, soiling the hind quarters of the animal. She was treated and relieved by antiseptic vaginal douches. All went well for some five months, during which the mare did good work, when one day she became very lame on the left hind leg, which was diagnosticated as of acute rheumatoid nature. But the trouble increased: general condition assuming severe pains and high fever, swelling of the hock, warm, edematous and painful, which soon increased and spread upwards and downwards. Later on, the right hind leg became affected in the same manner to such an extent that standing, which had been very painful and uneasy, became impossible, and the mare had to remain lying most of the time. An abscess had formed in the fetlock, which ulcerated and contained a semi-consistant fluid, yellow-reddish, bloody, and then dark red wine color. This series of symptoms kept on increasing until after four days of great suffering the animal died suddenly. At the post-mortem all the lesions of septic poisoning were found, with infiltration of the muscular structure of the extremities, lesions of the kidneys, the liver, the lungs, etc. Besides all those there was a cancerous growth, as big as a child's head and weighing in the neighborhood of five pounds, of encephaloid sarcomatous nature and of old standing, which was situated in front and a little to the left of the right kidney.—(*Rec. Med. Vet.*, Dec., '97.)

INFECTIOUS PARAPLEGIA [By Mr. L. Mulotte].—Under

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this title the author reports an outbreak of what we think would be called spinal meningitis in the United States, in which five horses out of a stable of sixteen animals had died with symptoms and a history which are very similar to those which are observed in cases of spinal meningitis.—(*Rec. Med. Vet., Dec., '97.*)

TEMPORARY DEAFNESS IN THE HORSE [*By Mr. F. Du-mand*].—The driver of a horse harnessed to a cart had the habit, when driving and when the occasion presented to shoot birds flying within his reach. One day he met with a flock of partridges and shot at them. The horse showed no manifestations of surprise, but, when stopped, failed to answer to the calls of the driver to resume his work. When the author saw him he was entirely indifferent to whatever took place round him, his ears were drooping and immobile, was indifferent to the voice of his master; he was entirely deaf. This infirmity, however, was only temporary, it subsided and disappeared by itself without any treatment. It is said that the driver was also cured of his peculiar mode of going hunting.—(*Rec. Med. Vet., Dec., 97.*)

#### ENGLISH REVIEW.

NECK OF GLASS BOTTLE LODGED IN LARYNX.—The dangers connected with the use of glass bottles for the administration of medicines to large animals have been mentioned time and again, the cases recorded of accidents are very numerous, and still, notwithstanding the progress made in veterinary pharmacology, the glass bottle has still its advocates. An interesting fatal case is recorded in the *Veterinary Record* in which a horse, being administered a drench, crushed the bottle and part of it, the neck and the shoulder, passed beyond the mouth. Where? Post-mortem only revealed. Examinations of the mouth, pressure on the throat, failed to locate them. But evidently the bottle was broken, portions of it were found which, gathered together, made it complete except the neck and shoulder, the symptoms indicating the presence of foreign bodies in the air passages. In a few words, the poor horse died after several days' suffering, and the missing piece of the bottle was found firmly imbedded in the larynx. The smooth rounded end of the neck had passed first and the sharp pointed surfaces of the broken part were buried in the membrane and muscles of the pharynx. The free border of the epiglottis was sawn into

by the sharp border of the fractured glass. All the wounds of the larynx and the pharynx were of a gangrenous appearance.

OVARECTOMY IN A MONKEY.—Mr. Harold Leeney tells his experience in this operation on a pet animal. Bearing in mind the anatomical differences that existed in the genital organs of the little patient, and having no difficulty in bringing her under the influence of anaesthesia with a mixture of chloroform and ether (3 parts to one), the incision of the abdomen was made about a quarter of an inch to the left of the linea alba and the ovaries removed in the ordinary way. The next morning after the operation the animal seemed in perfect health and as if nothing had happened to her.—(*Vet. Rec.*)

MULTIPLE FRACTURE OF THE PELVIS.—It was a regular crushing of the right ossa innominata that Mr. Caudwell, F. R. C. V. S., found at the post-mortem of a hunter which had sustained a severe fall on a paved yard, which had occurred when the animal was suddenly started while resting after a morning walking exercise. The patient had evinced great suffering after the accident and evidently died from internal haemorrhage. On removing the skin no surface lesions of any consequence were seen. When the abdomen was opened an immense quantity of blood escaped, partly consisting of large clots. The abdominal and thoracic organs were normal, but presented a bloodless appearance. The muscular coat of the bladder was much extravasated. On cutting down upon the pelvis and the hip joint all the bones of the right side were found to be fractured, the fractures extending through the acetabulum, which was broken into three portions. The necks of the ilium and ischium were fractured, also the transverse portions of the os pubis, and the ischium between its symphysis and the obturator foramen. There were additional fractures through the ischial spine, etc., subdividing the detached portions into thin pieces. The cartilage of the head of the femur was somewhat roughened and the muscles of the quarter and their intermuscular spaces were extensively extravasated with blood.—(*Vet. Rec.*)

GLANDERS IN ENGLAND.—From an interesting statistic presented by Mr. W. Hunting, F. R. C. V. S., in a paper read before one of the English veterinary societies it seems that for the last five years the disease has gradually diminished. While in 1892, 3001 animals were recorded as having been affected, the number gradually subsided—in 1893 to 2133—in 1894 to 1437—in 1895 to 1594—in 1896 to 1294. From these and

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from other facts concerned with the sanitary regulations attached to the management of the disease and the greater facility of diagnosis offered by the use of mallein, the author expressed the opinion that "there can be no doubt that glanders is a disease which might easily be stamped out of Great Britain."—(*Vet. Record.*)

FRACTURED RIB WITH PERFORATION OF THORAX IN A COW.—A cow having gone astray during the night, writes Mr. J. H. Parker, M. R. C. V. S., was found the next morning with a wound on her right side. Shortly after her arrival at home she gave birth to two healthy calves. When seen by Mr. P. she had a large triangular wound between the tenth and eleventh ribs, through which air was rushing in and out, synchronous with the respirations. The last three ribs were fractured and there was considerable flattening on that side. The wound was closed with a suture, a pad of flour and water on a piece of linen was placed over it and held in position by a bed sheet stitched as firmly as possible round the cow. This was removed a month later. The cow recovered entirely with a flattening of the side where the fracture existed.—(*Vet. Record.*)

#### ITALIAN REVIEW.

ABORTION IN A COW—SEVEN FŒTUSES [*By Dr. Fernando*].—The subject was a good milking cow, seven years old, which for the previous four years had regularly given birth to one calf. About two hundred days pregnant, her abdomen is a little larger than in previous gestations, but not to any excess. On May 24th, she began to show signs of abortion by the escape of mucosities from the vulva and some abdominal pains. At eleven o'clock in the morning she dropped her first foetus and some three hours later she had already thrown out three. She remained quiet for several hours, when the pains returned and were followed by the expulsion of four more foetuses. The first foetus was a male, the second a female, and it thus kept on until the end of the abortion, when four males and three females had been dropped. The average weight of the animals was between 7 and 8 kilogs. and each one was well formed. Notwithstanding a careful removal of the placentaæ and antiseptic attention to the parts, putrefaction set in and the animal died.—(*Clinica Veterinaria.*)

STENOSIS OF THE PREPUCE RESULTING FROM ACROBYS-TITIS AND SHORTNESS OF THE PENIS IN A HORSE.—Prof.

Lanzillotti-Buonsanti records this case from the clinics of the Milan Veterinary School. A roan gelding, of common breed, for the last month had a swollen sheath, gradually increasing, painless, warm and oedematous. The hand introduced with difficulty through the preputial opening meets with a foetid magna and broken tissue. The penis cannot be reached. It is evident that the animal micturates in the cavity of its sheath and that the urine collects more or less into it. The diagnosis is evident. It is a case of acrobystitis with stenosis of the prepuce, due to the shortness of the penis. The treatment consisted in an incision on the median line of the lower skin of the prepuce, with the removal, V shape, of a portion of skin on both sides, with suturing of the external and internal cutaneous folds on each side of the incision. This was made sufficiently long to reach the free extremity of the penis. The cicatrization of the edges of the wound demanded but little time to take place, and in some three weeks the animal was able to resume his work.—(*Clinica Veterinaria*.)

TRAUMA OF THE HEART IN A COW [By Mr. Sismondo Ussal].—This is not an unusual case, interesting principally by the extent of the lesions which were found at post-mortem. The symptoms presented by the animal having been those of similar injury, but having been overlooked or neglected, and the animal having died suddenly, the author was called to make the autopsy. The cause of death was a long sewing needle which had penetrated from the reticulum into the thorax, through the diaphragm and passing to the pericardium and the substance of the heart, had given rise to serious lesions and a fatal complication.—(*Clinica Veterinaria*.)

A QUEER TREATMENT FOR INDIGESTION IN CATTLE.—The *Giornale della Reale Societa Veterinaria* is responsible for this. It seems that in some parts of Italy, where empiricism flourishes, its partisans use frequently the following treatment, and it is said to be successful. When an animal is taken sick, it is made to swallow the whole skin and feathers of a black fowl. The feathers of the fowl must be thoroughly black and the comb of the animal well developed, free from scabs and of a rubilant red color. The best part of the treatment is that while the bovine struggles the best it can, the empiric eats the meat of the children, a big plate of salad, two pounds of bread and drinks a quart of good wine.

SULFURET OF CARBONE AND BOTS.—Mr. Ruyarti has given to two horses, in the space of six hours, six gelatine capsules

containing each 15 grammes of sulfuret of carbone. The first horse during the four following days passed 497 bots and the second 571 in the five days following. Mr. Palermo gave one horse 32 grammes in five hours and he passed during the four following days 203 bots.—(*Giorn. della Reale Soc. Vet.*)

### BELGIAN REVIEW.

CANINE PATHOLOGY [By Mr. E. Lienaux].—1. *Traumatic Neurosis Simulating General Chorea in a Dog.*—This clinical note refers to a four-year-old bull-dog, which had an abscess the size of a large nut on the left jugular groove. This was opened and antiseptic treatment prescribed. Two days later the patient had become exceedingly nervous, howling, trying to conceal himself under the furniture of the room where he was. On the fifth day all the signs of a general chorea were well manifested, and on account of its severity a doubtful prognosis was given of its recovery. A treatment with basis of bromides was prescribed, but could scarcely be applied on account of the aggravation of the symptoms when its administration had to take place. At any rate, after twelve days the wound had entirely cicatrized and a week later the convulsions had disappeared. The animal, however, remained always very shy. 2. *Softening and Tearing of Intervertebral Menisci with Consecutive Myelitis.*—The subject of this observation was a dog used for light draught, which of a sudden presented the following symptoms: Spontaneous painful moans, difficulty in walking due to the stiffness of the fore legs. If the animal is made to stand and move, he goes off by short steps, with scarcely any flexion of the extremities; the dorsal face of the claws rubs the ground. Flexion of the knee is difficult to obtain. The neck is very stiff. Palpation and pressure of the fore legs are not painful. Appetite is still good. After a short time paralysis of the hind legs occurs. The animal moves with his fore legs, when held up, and drags his hind feet after him. He remains in lateral decubitus, but yet eats, providing food is brought to his mouth. The temperature varies between 102 and 104 degrees. The patellar reflex is lost on both sides. Defecation and micturition normal. After seven days of this condition the dog died, and at the post-mortem were found: Infiltration and abscess of the longus colli muscle, periostosis of the vertebro-costal articulations from the second to the eighth vertebræ, separation of the third and fourth dorsal vertebræ, and

between them dark thick blood mixed with small pieces of bones, infiltration of blood in the vertebral canal, lesions of myelitis in the cord.—(*Annales de Brux.*)

CONTRACTURE OF THE ANTERIOR LEGS IN A COLT [By Mr. Nizel].—A colt just born is unable to stand up, and careful examination reveals a severe contracture (retraction) of the anterior extensors of the phalanges to such extent that the posterior face of the fetlock rests on the ground, the toe turned upwards. In front of the fetlock the hard cord of the extensors is felt, while on the back the relaxation of the flexors is readily detected. The treatment consisted in tenotomy of the extensors, made with all careful antiseptic precautions, and application upon both legs from the elbow down of four light splints, held in place by bands which hold the extremities in their proper direction. The hygienic treatment was difficult to carry out, the animal (instinctively lying down most of the time) was raised every now and then, allowed to suck, and then laid down; careful attention to avoid bed sores was also required. The dressings were removed after 21 days. The flexor tendons have resumed their normal tension, the colt rests pretty well on its feet; however, now and then dropping on its fetlocks; the wounds of tenotomy have healed and every indication shows that ultimately the little fellow will stand in a normal condition.—(*Annales de Brux.*)

TORSION OF THE MESENTERY A CAUSE OF INTESTINAL OBSTRUCTION IN A DOG [By Mr. Lienaux].—A fox-terrier, six months old, had been thrown in the air and made to turn somersaults by children, and an hour after is taken with violent pains, a few vomitings, becomes quiet, assumes a sternal position and dies in 12 or 15 hours. At the post-mortem it is found that the whole mass of the small intestines has been twisted round the point of attachment of the mesentery, drawn up to the lumbar region, and thus cutting off the circulation, they are presenting lesions of gangrene. The other part of the abdomen looked normal. The torsion of the mesentery had taken place in such a manner that to undo it, it was necessary to give the intestinal mass a rotatory motion from right to left and from forward backward. By this motion, the intestines are able to resume their position and leave the lumbar region. Spread, the mesentery is covered with haemorrhagic spots. Surgical interference might have been indicated, but the rapidity of the disease prevented it;—and, anyhow, the diagnosis was too doubtful to justify it.—(*Annales de Brux.*)

LAPARO-GASTROTOMY AND EXTRACTION OF A FOREIGN BODY IN A DOG [By Mr. J. Hamoir].—A young dog, playful and mischievous, as animals of his age are, is suddenly taken with groaning pains and vomiting. He has an abscess on the anterior part of the neck, and seems to recover. A short time after the symptoms return, the appetite is lost, the dog loses flesh rapidly. An abscess forms on the right costal region, this ulcerates, and from the ulceration a long pin is partly pulled out, but held in place, in the abdomen, by the other extremity. The operation, carried out antiseptically, consisted in division of the intercostal muscle, exposure of the stomach, which is found adherent to the tissues surrounding, and which carefully separated with the blunt end of the scissors, permits the exit of the head of the pin and its final extraction; the borders of the gastric wound being held by forceps, an aseptic ligature is applied all round the stump, and passed afterward in front and behind through the musculo-cutaneous border of the parietal wound. The outside trauma is disinfected. Complete diet, carefully regulated. Antiseptic lotions. Radical recovery in a short time.—(*Annales de Brux.*)

## THERAPEUTICAL REVIEW.

CREOSOTE IN CHRONIC CONSTIPATION.—Creosote made of beechwood tree, given in doses of a few drops in a little water (gradually increasing from 1 to 8) gives very good results in chronic constipation of man. It acts as a tonic and an anti-septic. Its use in veterinary medicine for dogs would also probably be advantageous.

MIXTURE AGAINST TAPEWORM.—Used in human practice and recommended also for canines. After the effects of a dose of castor oil or of a saline, a dessertspoonful of the following is taken every hour: Rx. Chloroformed alcohol at 10 per cent., 8 grammes; rectified spir. of turpentine and ethered extract of male fern, of each 4 grammes; glycerine, 15 grammes.

TO OVERCOME TETANIC CONTRACTIONS OF THE UTERUS DURING LABOR.—Prof. Müller recommends the administration of five drops of the following mixture in a little tepid water: Rx. Tinct of iodine, 1 gramme; alcohol, 2 grammes.—(*Thier. Woch.*)

BARIUM CHLORIDE IN TYMPANITES OF CATTLE.—This preparation has been used successfully in that disease, not in intravenous injections, as in colics of horses, but in solution of

water and by drenches. Marder has obtained good results with it in a bull in doses of 5 grammes renewed every three hours. Taber gave at once 15 grammes in a cow, 18 in a bull and 8 to a calf.—(*Berl. Thier. Woch* and *Deut. Thier. Woch.*)

MIXTURE FOR LOCAL ANÆSTHESIA.—Hall recommends as more active and easier to keep than solutions of cocaine, a mixture of 10 per cent. of resorcin and 20 per cent. of cocaine. He uses it with a brush over the skin.—(*Berl. Thier. Woch.* and *Deut. Thier. Woch.*)

TREATMENT OF MANGE IN THE DOG.—Under the name of scabinol, Mr. Issleit recommends the following prescription, with which he has obtained excellent results in hundreds of dogs: Potassic soap, 4 parts; naphthol, 1 part; styrax, 2 parts; extract of tobacco, 3 parts. The compound is used in frictions three days consecutively over one-third of the diseased cutaneous surface, to avoid general effects. After these frictions, the whole body is washed for three days with diluted scabinol (2 tablespoonfuls in a quart of water). The scabinol reddens the skin, but in drying leaves a soft surface, which drops off after five or six days.—(*Berl. Thier. Woch.* and *Deut. Thier. Woch.*)

## OBITUARY.

SAMUEL E. QUEEN, V. S.—At his residence, 128 South Fifth Street, Steubenville, Ohio, January 13, 1898, after a lingering illness, Dr. Samuel E. Queen, V. S. He was born in Carroll County, Ohio, May 22, 1862. He leaves a wife and two children to mourn his early demise. He was a graduate of the Ontario Veterinary College, class of '85, and had been practising in Steubenville since leaving college, where by his skill, integrity and high moral worth, he had built up an extensive practice.

His many friends, both in and out of the profession, will mourn the loss of Dr. Queen, as he was possessed of a kind heart, coupled with a good Christian character.

A CLASS MATE, R. J. M.

REVIEW SUBSCRIBERS should remember that subscriptions to Vol. XXII (beginning with April number) are now due, and must be promptly paid if they wish the journal continued to their addresses. Remember also that *you can't afford to let the REVIEW cease its visits.*

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## THE CAREER AND DIREFUL FATE OF VETERINARY SURGEON PEAS.

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*At First—*

He'd the deep and profound knowledge  
Learned at *the* veterinary college,  
Tuberculosis and neuroses,  
Diagnosing (?) displaced cæcum,  
Vis a tergo, metric system,  
Inulin and haemachroses,  
Strongylus-ovis-pulmonalis,  
Stomach flayed by paracentesis,  
Sarcoptes and diapedesis,  
Composition of the faeces,—  
These, all these, and many more than these,  
Were known to Veterinary Surgeon Peas.

*And Then—*

He knew all the carbohydrates  
And their effect on nutrition,  
Nitrogen and splenic function,  
Hyaline degeneration,  
Knew the history of paresis  
From the time of King Rameses,  
Knew specifics for condition,  
Inflammation, exudation,  
Thoroughpin and exostosis,  
Also how to aid osmosis,—  
These, all these, many more than these,  
Were known to Veterinary Surgeon Peas.

*Seeking the Bubble—*

He was stuffed with erudition  
As you stuff a leather cushion,  
Cutting "rugs" and balanced ration,  
Manyplies with great impaction,  
Myxoedema, vaccination,  
Antitoxine agitation,  
Multiplied exaggeration;  
Authority on legislation,  
Germicidal cultivation;

Little practice, much vacation,—  
These, all these, and many more than these,  
Were known to Veterinary Surgeon Peas.

*Age of Usefulness—*



Veterinary Surgeon Peas—Age of Usefulness.

On old placentae he was skilled,  
And with cures for spavin filled.  
He also made hermetic powder  
That wounds nine miles point blank  
would solder.  
Toiled this man with bots and colic,  
Giving shot-gun pills di'bolic,  
And dehorning rams hydraulic.  
Still he toiled for promised pay,  
Trusting, trusting every day  
For his pay to come "next May,"—  
These, all these, and many more than  
these,  
Were known to Veterinary Surgeon Peas.

*Last Scene of All.*

" You are great and we will tell it,"  
Quoth his patrons for their credit.  
Ods bodkins ! he yokels trusted  
Till his bank account was busted,  
Thus he toiled without collecting,

Making debts and just existing ;  
Credit, trusting was his feasting,  
So he leaner grew with feeding.  
Larger grew pathetic patches  
On once bright and sporty breeches,  
Till he heard the Angel call,—

\* \* \* \* \*

Now—he needs no pants at all.

S. R. HOWARD.

REPRFSENTATIVE AMERICAN LABORATORIES.—In a department bearing this title the *Journal of Applied Microscopy* for February describes in a long and well-illustrated article the laboratories of microscopy, histology, and embryology, and of bacteriology and pathology, of Cornell University, including a very perfect cut of the New York State Veterinary College.

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## CORRESPONDENCE.

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### VETERINARY LEGISLATION IN NEW YORK.

ITHACA, N. Y., February 20, 1898.

*Editors American Veterinary Review:*

DEAR SIRS: The annual convening of the New York Legislature is signalized by the usual attacks upon the veterinary education and practice laws of the State, which are, as is well known, in advance of veterinary laws in other States.

One bill favors admitting to practice a new batch of charlatans who during the past three years have practiced contrary to law; another is in the interest of students who entered veterinary colleges in 1896 without complying with the laws then in force as to matriculation, and judging from the editorial pages of the REVIEW we are next to see a determined effort to wipe out entrance requirements for veterinary education.

Upon any one of these questions opinions may readily differ, and the writer, viewing the question of entrance examination from a different outlook, may be pardoned for holding opinions at variance with those of the editor of the REVIEW, believing that the difficulties under which the New York City colleges seem to be laboring are not due chiefly to veterinary legislation.

The late "boom" in livestock had as a companion a similar flurry in pseudo-veterinary education, causing the upshot rather than growth of a number of alleged veterinary colleges beyond the real needs of the public.

The most conspicuous character of many of these was a keen competition as to which institution could admit the most ignorant man, keep him the shortest time at the lowest price and "graduate" him with the least possible inconvenience. This pandemonium quickly filled the country with a class of veterinarians (pardon the nomenclature) whose merits or rather demerits were quickly recognized by an intelligent public. While it is alleged that P. T. Barnum held that the American people like to be humbugged, it might have been added that they are to some degree choice as to how and by whom the process shall be applied. Then came the collapse of the livestock boom and logically a pseudo-profession living upon a host as a parasite experiences ill health when the host dies.

As a result many of these "veterinarians" forsook their "profession" and turned their talents to the carpenter, barber or other trade for which their talents better fitted them, others led and are still leading an uncertain existence, and enjoying a

plane in the social and business world not higher than their natural talents command.

Such a state of affairs induced a serious and rapid decline in the number of students in almost every college in the country.

It was readily seen by the public that a certain class of veterinarian was useful, in fact, we had reached a stage of civilization where a higher type of veterinarian was essential to the good of society.

Up to this time the veterinary colleges had been chiefly of a type we may denominate "commercial," that is, they were equipped and conducted by private parties who were under necessity of earning a rental upon college property and obtaining a professional fee for the work of teaching. No wealthy philanthropist had endowed, no State had supported them.

The more worthy ones accomplished a work of inestimable value, which although in part obscured by the inferior institutions can not pass unseen. Their graduates constituted a vast educational force, a band of pioneers who made the existence of other kinds of colleges possible.

When the public demanded better educated veterinarians many of the better pioneer colleges increased their curricula from two to three years of their own volition, thus showing a willingness to keep pace to a degree at least with public sentiment. In the meantime philanthropists and States had turned active attention to veterinary education, and, passing by the pioneer colleges, laid what they apparently thought more enduring and extensive foundations in connection with great universities and concurrently have enacted veterinary practice laws in harmony with the sentiment underlying the new college foundations, which may incidentally be inimical to the interests of other colleges.

In what degree these movements in the field of veterinary education and practice may have injured the colleges in New York City we have no data to show.

For several years prior to the New York laws these colleges had been declining heavily in attendance. It is true they had raised their courses from two to three years, but if this alone were the case, the cheap and easy two-year colleges should have profited thereby, but all the data at hand shows instead that they have suffered in an equal ratio to the colleges demanding longer terms of study.

We have no data to show that New York City colleges have suffered more severely in diminution of attendance than other

commercial colleges, while those schools endowed or maintained by the various States have suffered no serious diminution, if any at all, in attendance and find their work on the whole moving on hopefully, not especially in New York, but in the United States generally, yet their requirements for matriculation and time of attendance are constantly higher than those of other colleges.

It is so with the medical colleges, those heavily endowed and financially independent command just as good attendance with four years' course and high entrance terms as under prior conditions, hence the College of Physicians and Surgeons of New York is not clamoring for a lowering of entrance requirements, and Johns Hopkins Medical School increases its attendance as it raises its admission, which now rests at a college degree as a minimum for entrance.

The veterinary matriculation requirements do not seem to us so ridiculous and excessive as to the editor of the REVIEW.

We do not know of a branch of learning required which is not of value to the candidate for a veterinary degree. He is not required to pass an examination in Greek, Latin or Hungarian, geometry, calculus, music or painting. He may, if he elect, be examined in botany, chemistry, zoölogy, physiology, French or German, any or all of which the editor of the REVIEW will agree with us would materially aid the student.

The law *demands* that the veterinary student shall be fairly versed in English, and this we think the editor will agree is well, even though one prominent college does not require a student to be able to read or write until half through his course, the educational methods being somehow adapted to overcome the necessity for these "extras" during the first half of the course.

In short, the laws of New York require that the student shall before entering have accomplished four years of high school work or its equivalent, permitting him to substitute almost any branch of learning for any other one, holding firmly to but few basic ones like English.

The advance in requirements has admittedly been abrupt, from no requirement in 1895, to two years high school work in 1896, thence to four years high school work or its equivalent in 1897. By this abruptness, no candidate being barred in 1895, and two years academic work required for 1896, those entering in 1896 were not candidates in 1895, as anyone who could not enter then could not hope to enter in 1896, and work as he

might could not matriculate in 1897. In other words, the advancement in requirement was 100 per cent. greater than the capacity of the student to learn, so that a student failing in 1896 must make extra time in high school work in order to enter in 1898.

There is a goodly number of candidates for admission now at work preparing to meet the entrance requirements and we favor allowing them to go on and complete their preparation.

The veterinarians in New York outside the metropolis are almost to a man of foreign education, the New York schools failing to secure their attendance. Now our laws practically exclude foreign graduates, and open a new field to the complaining colleges, so that while the sudden advance in requirements may work temporary embarrassment, it must in our judgment prove of distinct advantage in the hold upon territory and in the inestimable improvement in the class of matriculants, whether viewed from an educational, social, or other essential standpoint.

The number of veterinarians in the State will be regulated by the demand and the latter by the class of veterinarians hereafter licensed by our State Examining Board. High requirements have not caused a dearth of veterinarians in France or Germany and can not do it in New York or any other commonwealth.

We consequently prefer to stand by the laws, advance the standard of veterinary education and practice in New York to a degree which will command patronage and applause throughout the nation.

W. L. WILLIAMS.

*New York State Veterinary College.*

## BIBLIOGRAPHY.

VETERINARY BLUE BOOK, 1898. Published by authority of the Veterinary Medical Association of New York County. Edited by Rush Shippen Huidekoper, M. D., Veterinarian (Alfort), President of the Association.

A quotation from the introduction to the long-looked-for "Blue Book," which made its appearance on the first of February, will explain the motives which prompted its production and show the objects which it hopes to accomplish: "The Veterinary Blue Book is the product of the necessity which certain veterinarians felt they required to establish their profession upon a more definite basis than had existed a few years ago. When legislation undertook the regulation of the practice of

veterinary medicine in New York State, the only organized body of veterinarians in it was the State Society, to which only two or three practitioners in New York City belonged. Throughout the State men of all classes assumed any veterinary title which they saw fit, and when the law commanded the first registration of veterinarians, Patrick <sup>his</sup> O'Grady and an educated

<sup>mark</sup> graduate from a four-years' course in a German university were peers in its eyes. The practice of veterinary medicine was equally deplorable. Many graduates and non-graduates competed in augmenting their trade by the sale of quack medicines. By familiar association with coachmen and grooms, and liberal division with them of the money charged the horse-owner, veterinary practices were supposed to be built up. . . . " etc. Following this statement it shows the progress that is being made and the efforts being put forth to purge the list of those legally qualified to practice of all who have not the right.

No statement of the intended scope of the "Blue Book" has approached its reality, it having grown from an intentional pamphlet of 100 pages to a very complete volume of nearly 400, and includes almost every subject bearing in any way upon the profession. Every State in the Union and the Canadian Provinces are succinctly taken up, and every aspect of the profession in each commonwealth is fully given from the law governing its practice (if one exists), State and local societies, State Veterinarian, down to the prominent practitioners, and in the case of New York a very complete list of all registered men who are in practice at present. A list of veterinarians employed by the United States Government, in the Departments of Agriculture and War; the tariff as it affects live stock; rules and regulations of the Bureau of Animal Industry concerning transportation of live stock and kindred subjects, including quarantine regulations of the country; acts of Congress bearing upon animal economy; health and veterinary sanitary laws of the various States; the jockey club, its members and officers, with the rules of racing; American turf congress with its rules and the rules of betting; Steeplechase and Hunt Association; National Trotting Association, officers, rules and regulations; American Trotting Association; Polo Association and its rules; Horse Breeders' Association; dog clubs of America; transportation of animals by express, by railroad and steamships, with details by the various routes; records of horses' speed under every condition and in various countries; rules of the road in New York

City ; the licensing of dogs and the American Society for the Prevention of Cruelty to Animals ; barnyard and farm manure ; live stock in the United States ; American horses in England ; various statistical tables referring to animal interests, and much other useful information.

The above brief and incomplete recapitulation of the salient points of the "Blue Book" gives but an imperfect idea of the immensity of the work which the editor has gathered between the covers, and to the veterinarian or man interested in live stock it can truly be said that the book is invaluable. That anyone could have been found willing to undertake the preparation of so much information—involving as it does a vast amount of correspondence and details, is a matter of congratulation, and the least that the profession can offer in appreciation of the task which has been so well accomplished is to buy it. We trust that the present issue may be so well received by the profession everywhere that the editor will feel encouraged to reissue it annually or biennially, as warranted by its sale.

## SOCIETY MEETINGS.

### CHICAGO VETERINARY SOCIETY.

The regular meeting of the society was held at the Sherman House, Jan. 13th, and the following members were present : President, R. G. Walker ; Secretary, James Henderson ; R. Gyssel, L. Campbell, P. Quitman, E. L. Quitman, Jos. Hughes, L. A. Merillat, J. Robertson, B. A. Pierce, A. H. Baker, C. A. White, O. C. Dyson, C. G. Nelson, F. J. Leith, C. C. Sayre, A. E. Richel, J. B. Clancy, A. O. Caspar, D. Kermath, Frank Allen, O. K. Dubia, W. C. McGarth.

The minutes of the last meeting were approved as read.

*Secretary's Report.*—He read a letter sent by him to the Civil Service Board of Commissioners as instructed at the last meeting asking them to appoint a time of meeting with our Legislative Committee. A reply from the Secretary of the Board was also read granting our request.

*Report of Legislative Committee.*—Dr. Hughes, as chairman, gave an account of the meeting above arranged for. The Board averred that it had many examinations on hand, in each of which large numbers of men were involved. That in the examination for the purpose of securing a veterinarian to attend the police horses only one man was concerned, and on that account it would be postponed in favor of those examinations in

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which numerous positions were to be disposed of. The Board stated, however, that the examinations in which we were interested would be held before its term of office expired—that is, before six months; but further that it might be held any time after two weeks, the date depending upon the manner in which they prospered with the preferred examinations. The Board also stated that the examination would, if possible, be conducted by expert veterinarians outside of the city, as it would be unfair to have a member of our society examining both his fellow-members and other practicing veterinarians outside of the society at the same time. This last arrangement was cheerfully accepted by the committee.

*Unfinished Business.*—At our last meeting (Dec. 9th) a motion was carried that all action in expelling those of our members who retained their commissions as Assistant State Veterinarians to the present empirical chief should be postponed until this meeting. After considerable discussion, the following motion was made by L. Campbell, seconded by the Secretary, and carried by the meeting: "That a vote by ballot be taken to decide whether these gentlemen be retained as members or not." Twenty one ballots were cast, ten for expulsion and eleven for retention.

#### REGULAR PROGRAMME.

Dr. Gysel read a paper on "The Operative Treatment of Quittor."

The society then entered upon the work of drafting "a guide which would aid us in distinguishing a sound from an unsound or 'serviceably sound' horse when under professional examination."

The following are our reporter's notes upon this effort:

*Dr. Quitman.*—In making an examination for soundness, always remember that a horse is a living monument to its examiner, and for that reason it is important to be extremely careful. It is better to be sure than sorry.

*Diseased or Absent Molars.*—A diseased molar is unquestionably an unsoundness, because (1) that molar will sooner or later cause trouble in mastication of food, or (2) fistula or necrosis of the lower jaw or nasal gleet of the upper. I unquestionably would reject a horse having a decaying or absent molar.

*Absent Molar.*—We must look at this from two sides. If the horse is being sold for a fair price, and, being otherwise sound, I would reject him. Some say it is pretty harsh, yet we know the cavity will lead to several different results. The

opposite tooth will sooner or later grow into that cavity, and if not cut off, will bruise the opposing jaw. The animal may be serviceably sound.

Cribbing.—This I will take up along with wind-sucking. Wind-sucking usually follows cribbing, and when he gets more accomplished he becomes a wind-sucker. A cribber must have some object on which to press his teeth. A cribber may become a wind-sucker in a very short time, and I have seen a horse graduate in one case in about four days. It is certainly a cause to reject a horse. Its simplest fault is ruining the general appearance of the teeth. It is an unsoundness, or it leads to unsoundness. It may be a symptom of gastric irritation and chronic indigestion, unless gotten by imitation. Cribbing, if only a habit, leads to wind-sucking, and wind-sucking leads to constant bloating and irritation of the digestive apparatus, or is due to that condition. My opinion is that cribbing is an unsoundness, and wind-sucking still more so.

Misrepresentation of Age.—This is a little hard to define as an unsoundness. If the animal is perfectly sound, that could not be called an unsoundness. The animal could be returned as being unfit for use if purchased. Forcing the age by extracting the milk teeth before they are ready to be shed is easy to tell, and the rejection of the animal should depend upon his acceptability to the buyer.

Side-pulling.—This takes in its scope a hard-mouthed animal. Side-pulling is a very disagreeable and dangerous habit, and I claim an animal so affected is unsound. Side-pulling may be due to a habit, or from sharp or diseased teeth. It is sometimes a result of nasal gleet and brain pressure. Sometimes there is no diseased condition at all, and he may become a side-puller by having been driven double and then single. It is a very dangerous habit, especially in crowded cities, as the animal may be the cause of bringing his owner into court. Hard-mouth comes out in driving. It is usually more or less easy to tell by the cicatrized condition of the mouth.

*Dr. Merillat.*—I will include diseased and absent molars as one and speak of them together. On account of the importance of mastication, I would consider it a serious lesion. There is no animal in the order of mammalia or herbivora that needs such an extensive mechanism of mastication as does the horse. His food is dry and hard in texture, and must be thoroughly masticated for his gastric digestion, and such diseased molars must lead to serious disease sooner or later; and, again, disease of one

molar is an indication that others are not too sound. You will find by observation that an animal with a diseased molar, if it occurs during the earlier years of his life, is quite sure to have an early disturbance of his whole dental mechanism, as I believe that diseased teeth are due to faulty development.

Side-pulling is a bane to the man practising dentistry. It is a simple habit to the laymen, and one that the laity believe the veterinarian should easily remedy, whether it is caused by abrasions of the buccal membrane or from sharp teeth of any kind. In the latter instance dentists can be of some avail. Another great cause of side-pulling in my observation is lameness or soreness in one side of the body. Navicular disease is another cause. You will find this chiefly in the animal that does not pull much. He is the worst side-puller, and does not take the line, and keeps edging from one side of the street to the other. I firmly believe that Dr. Quitman's central cause can be one of the etiological factors in this condition, namely, lesions of the brain, but I do not believe that softening could be put under that head, but chronic hydrocephalus. Ocular disease is another great cause. An animal that has not good and perfect sight might have it from central origin. In these cases it is foolish to try and cure the side-puller by removing and cutting the molar.

*Dr. Dyson.*—In my experience it is a habit and due in a great many instances to over-checking or faulty driving. A good remedy for its cure is a change of driver, liberal use of the whip and to abandon the high-checking of the horse. I think in the majority of cases it is merely a habit.

*Dr. Wyman.*—I was so forcibly struck when the statement was made of softening of the brain and cerebritis that I thought at some time or other during my life at college that I might have been negligent in gathering the facts, and for that reason only did I beg your permission to speak on the question which before so suddenly came to an end. Hydrocephalus is a condition where we have the lateral ventricles, the third and never the fourth filled with serum. This serum is the result of either a transudation or exudation from the choroid plexuses. It may follow an acute lepto-meningitis or be an oedema pure and simple. The condition which we usually find on post-mortem is a serum amounting from 20 to 40 grammes, 40 being the utmost given by Degraf. Lepto-meningitis is only too often the result of an infection, and softening of the brain never takes place at all, excepting traumatism is present. The point I wish to make, I put it of traumatic origin with subsequent infection.

*Dr. Quitman.*—I mentioned it was due to an injury and believe the majority of so-called dummies could be traced to traumatic injury. It is a common occurrence to see a horse hit over the head with a broom stick or anything of that kind, and the condition that we find as dummy very closely resembles the symptoms that follow, and while I do not doubt the condition that any pressure on the brain will cause these conditions I claim that softening off the brain can be a cause.

*Dr. Wyman.*—The doctor said that softening in the horse might lead to this trouble. Softening of the brain is either of traumatic or infectious origin and that it does take place is a fact. We do find it, especially as a complication of those troubles where we have a metastasis that may lead to abscess formation.

*Dr. A. H. Baker.*—I do not consider a horse with an absent molar, and otherwise sound, as unsound. The mere fact that the corresponding molar extending down into this cavity and into the tissues below as being sufficient excuse for rejection of the animal are insufficient. There is no horse that will not require attention sooner or later. They are all composed of flesh and blood and when put into service will all go wrong. Where there is an absent molar the opposing molar needs excising. A horse with a diseased molar is unsound. Cribbing *per se* is not unsoundness. It is a habit on which the common law will allow a man to return a horse. It is a habit that certainly is very objectionable and will lead to defects and disorders which we, as examiners, have nothing to do with. Misrepresentation of age is not unsoundness. It is a fraud which the common law would punish. It does not interfere with health. He is just as healthy as though the age were not misrepresented. A veterinarian always gives his opinion regardless of misrepresentation. If a horse is nine and is represented as six, that should not influence the veterinarian, who should give his opinion regardless of whether the seller is telling a lie or not. Misrepresentation is fraud pure and simple and not unsoundness. Side-pulling due to no pathological lesion is not unsoundness. In the majority of cases it is due to sharp teeth. A dentist will correct it. If the horse is lame and is a side-puller it is unsound. Wind-sucking is a very serious question, because it is invariably associated with indigestion. Fifty per cent. of cribbers are wind-suckers and wind-sucking is unsoundness. It has always been a question in my mind as to whether a veterinary examiner of a horse for soundness should deviate at all from strictly or strict soundness. If

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we do not deviate from the point of soundness we pass very few horses, and interfere with the horse trade. If I found a diseased condition that would in any way reduce the value I would mention it. Absent molars is one of these cases. I would pass a horse with such a condition as sound if the cavity was closed with cicatrical tissue unless pinned down to a point of strict soundness. A horse with absent molars I would pass. My experience bears me out in this. I believe a veterinary examiner should be more or less liberal in his report. He should avoid as much as possible interfering with the horse business or trade. Protect your client, and when it is for his interest reject. Your opinion must be based upon whether the horse's utility is interfered with or not.

*Dr. Robertson.*—I do not see how a horse with diseased or absent molars could be strictly sound, but I have been lax and have not examined many horse's molars. Cribbing is a bad habit and may lead to unsoundness, and a cribber should be rejected. Wind-sucking is also a cause for rejection. Misrepresentation of age is a question for the law to decide. We are not supposed to take the dealer's word for the horse's age. Side-pulling is a habit. Wind-sucking I would consider an unsoundness and cribbing a habit from the simple fact that I believe it can be traced to disordered digestion.

*Dr. Hughes.*—Diseased teeth in the upper jaw may be a cause of ulceration, a factor which might cause abscess in the maxillary sinus and nasal gleet. I confess I rarely look in the mouth for diseased teeth, at the same time that does not avert the fact that an absent molar means an unsound horse, and I do not think a man is justified in passing a horse with an absent molar. If you extract a diseased tooth that means that the horse is laid up for several weeks. I hold that cribbing as a rule is associated with wind-sucking. Now comes up the question as to what is wind-sucking. Is it a habit by which the animal grasps a mouthful of air and lets it pass down his cesophagus? No, we do not know anything about it. Misrepresentation of age is a question to be decided by law. As to the cause of side-pulling and definition, I must confess I have learned a great deal about it to-night. Dr. Wyman says it is a diseased condition of the brain, and the question of dummy came up, also cerebritis and softening of the brain. Dr. Quitman says a dummy means a softening of the brain. Dr. Wyman has taken the position that softening results from a traumatism, and that with the traumatism there must be infection.

*Dr. Quitman.*—In hydrocephalus due to meningitis, some of the primary symptoms are those of either motor or sensory irritation, locomotor ataxia or elevation of the legs; on the other hand, the slightest blood-clot may cause a paresis. Now, if we have this effusion into these ventricles large enough to cause this idiotic condition, how is it we do not have paresis? Is it chronic meningitis that causes that abnormal condition? If there is chronic meningitis, what causes these periods of normality? In early stages of cerebral softening they can be brought about by an extra amount of blood being carried to the parts, and dummies can be caused by considerable effusion into the ventricles of the brain and into the cervical portion of the cord and into the subarachnoid space.

JAMES HENDERSON, M.R.C.V.S., *Secretary.*

The February meeting was called to order by Dr. R. G. Walker, President, on the evening of February 10th, twenty-one members being present.

Under "Remarks by the President," Dr. Walker said "that he was greatly surprised at the result of the vote cast as to the retention or expulsion of Drs. B. A. Pierce and W. E. McGarth, assistants to a non-graduate State veterinarian. That had the vote been a tie that the President would have most certainly voted for expulsion. That the retention of these members was antagonistic to all previous sentiments shown by the society. That under new business a motion for reconsideration of the vote would be in order; the same to be voted upon at the next regular meeting if the vote for reconsideration was carried." The President next presented a letter from the Secretary, Dr. James Henderson, resigning from the society, as he intended leaving America to accept a desirable position in Scotland. It was moved and seconded that a committee of five members be appointed by the President to draught resolutions of thanks to Dr. Henderson for his efforts and work in the behalf of the society and regrets at his necessary resignation. Carried.

The nominations for Secretary being in order, it was moved and seconded that Dr. Campbell be elected to the office, as his departure from Chicago had been postponed. Voted and carried.

The committee appointed to draught the resolutions for Dr. Henderson is Dr. Hughes, Dr. Robertson, Dr. E. L. Quitman, Dr. Ryan and Dr. Baker.

There was no report from the Secretary or the Treasurer.

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Dr. Worms opened the discussion by reading the following paper:

Partial Amputation of the Tongue.—This condition is frequently met with and is due to mechanical injuries. Moreover, stablemen in order to control unruly or sensitive horses during cleaning, not infrequently pass a cord around the tongue. If this be sharply pulled, the tongue may easily be cut through, and the thinner the cord the more easily does the accident occur. Snaffle bits produce the same effect, especially if worn. The tongue may also be injured by sharp or displaced teeth.

Rupture of the *frænum linguæ* sometimes occurs in horses, resulting in suppuration, abscess formation and the production of fistulæ. Steffen, a foreign veterinarian, saw the point of a foal's tongue become gangrenous and slough after having been violently handled during some dental operation. His report of the case points to a blood vessel having been ruptured.

The diagnosis presents no difficulty. The irritation in the mouth, salivation, want of appetite or of slow, cautious mastication readily indicate the nature of the injury and its extent. Healing is usually rapid and certain, though transverse wounds of the tongue may leave a deep depression. But even this is no great drawback, and is only worth notice inasmuch as the animal wastes food in eating, and the tongue may be lacerated if forcibly handled during examination. But a portion of the tongue may be torn away in the first instance or later, and if the *frænum linguæ* be involved mastication will be rendered difficult.

Attempts to cure protrusion of the tongue have shown that in horses the removal of three-fourths of an inch causes no inconvenience, but where more is lost the animals are unable to bring the food between the back teeth. At times they seek to effect this by holding the head in the air like chickens when drinking, but at best some food must be wasted, and mastication takes longer. Graf, a foreigner, records that a horse which had lost the point of the tongue had severe swelling of the remainder, accompanied by salivation and inability to eat solid food. Only fluids and mashes could be taken. When the wound had cicatrized the stump only extended about three-fourths of an inch beyond the first molar. In three weeks the horse could again eat ordinary food, but took three times as long as formerly to do so. Ludecke, another foreigner, described a similar case in which the tongue was lost as far as the commencement of the *frænum*, but nevertheless the horse could eat as usual. I regard such a horse as unsound.

Paralysis of the Tongue (Glossoplegia).—Inflammatory processes may interfere with the movements of the tongue, but its paralysis depends on injury to the hypoglossal nerve which supplies motor filaments to the collective muscles of the tongue and most of those of the hyoid bone. Wounds, abscesses, or inflammatory processes may affect the nerves at some point of its course or at its origin on the inferior surface of the medulla and thus produce glossoplegia.

Kater (foreigner) saw one-sided paralysis occur in a foal which three months before had been wounded in the throat with a knife. On the left side the muscles of the tongue had so completely disappeared that at the point the upper and lower coverings of the mucous membrane were in contact. This paralysis is also seen during severe infections, as of contagious pleuro-pneumonia of the horse. In central paralysis both nerves usually suffer and of course both sides of the tongue, for the two hypoglossal nerves arise very close together. In the horse paralysis of the tongue sometimes accompanies acute meningitis or hydrocephalus. But all double-sided paralysis is not necessarily central. Diplegia occurs in horses whose tongues have been roughly handled and where both nerves have been injured.

The symptoms of one-sided paralysis are displacement of the tongue and difficulty in mastication and deglutition. In double-sided paralysis both acts become nearly impossible, particularly the latter. The tongue generally hangs from the mouth. In protracted cases the muscles atrophy, though of course in single-sided paralysis only those of the paralyzed side suffer. The disease must not be confounded with the so-called protrusion where the tongue is voluntarily lolled out of the mouth. Paralysis is shown by distortion and inability to retract the tongue. The prognosis is unfavorable.

Salivary Fistula.—Wounds of the salivary glands and their ducts often fail to heal because the continual flow of saliva pushes aside the granulations and hinders closure. The gland epithelium finally unites with that of the outer skin and through the opening so formed saliva flows continually. Although the general condition of the animal is only slightly affected much saliva escapes during eating and mats the hair of the cheek, finally producing a blemish. This is an unsoundness.

Salivary Calculi.—These concretions form chiefly in the parotid, sublingual and submaxillary ducts. They are caused by an accidental nucleus, such as a small piece of hay or corn or other foreign body penetrating the canal, to which the salts

of the saliva adhere, forming roundish or mulberry concretions, blocking up the duct, which becomes enlarged and distended with saliva. Sometimes an oat insinuates itself into the orifice of the parotid duct, producing distension of it by saliva, causing it to appear as a pendulous sac on the borders of the jaw. The concretion is only remarked after it has attained a certain size. It appears as a hard, sharply defined, slightly movable swelling, generally lying on the outer surface of the jaw, close to the front of the buccal opening of Steno's duct, but sometimes on the posterior border of the under jaw. The salivary duct is usually distended behind the swelling, and when the flow of saliva is entirely shut off the gland is enlarged. Inflammation is seldom present, but may appear and lead to formation of abscesses. Unsound.

**Polypi.**—A polypus may be defined to be a tumor attached by means of a narrow pedicle, and the most familiar example is the nasal polypus, attached to the superior part of the nostril. It is of softish consistence; bleeding when injured; often containing a limpid fluid in its centre, growing downwards, filling the cavity of the nostril, causing much uneasiness to the animal and interfering very materially with the respiratory function. There is a discharge from the affected nostril, causing much uneasiness to the animal, often tinged with blood, especially during exercise or work. The animal makes a snuffling sound in its breathing and frequently sneezes. The tumor cannot always be seen, but by growth becomes visible to the examiner. Sometimes it grows in the contrary direction and falls into the isthmus and is apt to become temporarily lodged in the larynx, causing the animal to breathe with the greatest difficulty, with a loud roaring sound and often to fall down from exhaustion and want of breath. By great effort the animal coughs the obstructing tumor from the larynx into the fauces again, and then the roaring sound and difficulty of breathing disappear. This is an unsoundness.

**Nasal Catarrh.**—Catarrh means a discharge of fluid from the mucous membrane. The form of catarrh under present consideration is at first a congestion, followed by inflammation of the mucous membrane of the nasal chamber—the Schneiderian or pituitary membrane, as it is specifically termed. The inflammation usually extends to the membrane of the sinuses of the head and often to the membrane of the larynx and pharynx, causing the complication of sore throat. Quite frequently the membrane of the eyes is also affected, as evidenced by its con-

gested condition and the flow of tears down over the cheeks; the nasal duct is lined with a continuation of the same membrane, and hence the inflammation of the eyes is only an extension of the disease over a continuous tract and not a special disease, as often supposed. The membrane of the nasal duct being swollen, the effect of the inflammation or congestion, the tears cannot flow freely through it, therefore they escape from the eyes and flow over the cheeks. *Symptoms.*—The membrane at the beginning of the attack is dry, congested and irritable; it is of a much deeper hue than natural pinkish red or red; soon a watery discharge from the nostril makes its appearance; the eyes may be also more or less affected and tears flow over the cheeks. Animal may be dull, and frequently he emits a sort of sneezing snort, but does not cough unless the throat is affected. A few days after the attack begins the discharge from the nostrils changes from a watery to that of a thick mucilaginous state of a yellowish white color and may be more or less profuse. Often the appetite is lost and the animal becomes debilitated. There is a rise in pulse and temperature. I regard such an animal unsound.

Nasal Cysts.—This is a small globular tumor sometimes found within the nostril, under that part of the skin that is seen to puff or rise and fall when a horse is exerted and breathing hard. These tumors contain matter of a cheesy consistency and are simple. If the tumor is well opened and the matter squeezed out nature will do the rest to perform a perfect cure. If the opening is made from outside through the skin it should be at the most dependent part, but much the best way is to open the tumor from inside. I regard such an animal as sound.

*Dr. Walker.*—I wish to understand whether we should drive a horse or not. I am interested in a driving school on the West Side and would like you to tell me to-night whether you think he should not be ridden under saddle. I think in order to make a complete examination you should not only drive a horse but ride him.

*Dr. Ryan.*—Do you consider side-pulling or tongue-lolling a disease?

*Dr. Hawley.*—In bringing up the question of soundness or unsoundness, it must be viewed from two points. One is the practical side and the other is the theoretical, and before going any farther I would like to ask this association if it has decided on what is an unsoundness. I think it is impossible to discuss it unless you give a definition.

*Dr. Walker.*—We have not arrived at that condition. It was considered that a committee would take that up farther along and then get the sentiments of the members here and find out what they considered sound or unsound.

*Dr. Hawley.*—In my opinion a horse may be technically unsound but practically sound or serviceably sound. A bare spot is an unsoundness, it is abnormal. A bad habit is an unsoundness; a kicker and balker is an unsoundness; a cribber for all practical purposes is sound. It is a habit, not a disease. My definition is this: That any blemish or defect which injures the usefulness or selling price is an unsoundness. Dr. Worms said in his paper that if three-fourths of an inch of the tongue of a horse is removed he will retain the food in his mouth. Technically that horse is unsound, because a part of his tongue is gone; practically he is sound. He can eat and is in good condition, and would sell for just as much money as if he had the tongue. He says that tongue-lolling is not an unsoundness. It certainly is an unsoundness, not a disease. There is no man who drives a tongue-loller through the street that cares for appearances. Nasal cysts he would not consider an unsoundness, but he says in his definition they are an abnormality. I would like to know if a nasal cyst is not an abnormality. It is an abscess, and contains pus, and if large enough would interfere with breathing.

*Dr. Quitman.*—I would take exception to the remark that tongue-lolling is a habit. It is sometimes a symptom of decayed teeth. I have seen several cases where the decayed tooth was removed and the tongue would be carried normally.

*Dr. B. Quitman.*—I wish to take an exception to the remark that tongue-lolling is a habit. It may be a disease and the horse cannot put his tongue back into the mouth. Such horses suffer a good deal with parched, dry and cracked tongue. I have an idea it is a disease of the nerves or muscles that control the tongue and I believe it is an unsoundness.

*Dr. Walker.*—It is quite possible for tongue-lolling to be a habit, as there are tongue-lollers that can be stopped. I have seen tongue-lollers cured by putting two large pieces of leather under their tongue.

*Dr. B. Quitman.*—That is curing by mechanical means.

Some one interrupted and asked the difference between a habit and vice, to which Dr. Quitman replied that he understood that kicking was a vice in horses. A horse may be sound and be vicious; he is a kicker. Vice is not an unsoundness

according to the correct English definition of the word. Such a horse is dangerous and can be rejected according to the law, although you may claim the horse is sound. According to law vice invalidates the sale.

*Dr. Walker.*—English law is: “Sound, free from vice and a worker.”

*Dr. Campbell.*—Will we accept or reject horses having the disease mentioned if they occur?

*Dr. Caspar.*—I slightly differ with Dr. Worms in regard to the slight discharge from the nose in horses, as there are a good many horses coming from the country with a slight discharge from the nose which are perfectly sound, and I would not reject them. Dr. Worms says anything which is not normal he would consider unsound. I do not consider it is fair to reject a horse with a temperature of  $1.5^{\circ}$  that has a slight discharge from the nostril. I see horses every day with a temperature of  $102^{\circ}$  F. with a slight discharge from the nose and which are in every way sound, and I think it would be a great injustice to the seller to reject them.

*Dr. Campbell.*—I would like to ask Dr. Caspar if he found a horse with a temperature of two degrees would he pass him?

*Dr. Caspar.*—We do not take the temperature of animals out there. I still think it an injustice to reject a horse when he is perfectly sound and satisfactory in every respect and satisfactory to the buyer if he has a slight discharge from the nostril and a temperature of  $102^{\circ}$  F., and I would not reject him. My original argument was  $101$  or anything above normal and I went to  $101.5^{\circ}$  or even  $102^{\circ}$ .

*Dr. Worms.*—Dr. Caspar is discussing acute catarrh, where you get a temperature of  $102^{\circ}$ , mucous membrane of the eye injected; then comes the question whether it is acclimation fever or catarrh. In acute catarrh you do not get a purulent discharge. In chronic catarrh you get a purulent, thick mucilaginous discharge, and it is an unsoundness, and I would not pass a horse with that discharge from the nose. A slight running at the nose like you find in ephemeral fever and acute catarrh I do not consider an unsoundness.

*Dr. Quitman.*—The practical and technical division which Dr. Hawley made is a good one. For instance, I examined a high-priced horse some two or three months ago. He was extraordinarily sound, with the exception that he had a discharge from the nostrils and a temperature of  $104^{\circ}$ . The owner did not even go to the Yards, but left the matter of the examination for

me to decide. After making the examination I telephoned him the horse was sound except for the time being he was sick, but thought that the horse might recover. I told him there was danger in taking the horse from the stable. He asked me if I considered it safe for him to buy the horse. I told him it was safe to buy the horse if he left him there for treatment. In passing a horse for soundness it is well to put it to the common sense of the man for whom you examine the horse. A horse with ephemeral or acclimation fever practically and technically is unsound. In my opinion this is so for the reason that the slightest amount of exercise is apt to make him catch a fresh cold and bring on pneumonia or something else by exhausting him; at the same time, if the owner takes these chances, I would pass him. I drove the above horse at a temperature of  $104^{\circ}$ . I told the seller that the horse was sick and examined him at his risk, but at the same time you cannot give a dealer a fair show by passing a horse with a temperature of  $104^{\circ}$ .

*Dr. Walker.*—You would not advise us to pass a horse with a temperature of  $104^{\circ}$ . Answer. No.

*Dr. Walker.*—Why did you do it? Answer. Because we cannot always go according to law. I wanted to see if he had any lameness. The seller told me to hitch him up and wind him. Several made objections to the winding of a horse with a temperature of  $104^{\circ}$ .

*Dr. Hawley.*—Horses are sold at the Stock Yards every day with a temperature ranging from  $101^{\circ}$  to  $104^{\circ}$ . They are hitched up and winded time and again and come out all right.

*Dr. B. Quitman.*—Horse dealers and veterinarians should look out for themselves. Some horses will retain their appetite even though they be very sick. I would not pass a horse with a discharge from his nose, because it may subside within a few days or lead on to something serious.

*Dr. Worms.*—I wish to take exception to the remark about tongue-lolling, and I consider a veterinarian is very careless in making an examination if he does not drive a horse. Of course if a man is examining a truck horse it is a different thing. I never examine a driving horse but what I ride behind him. I think a veterinarian is making an extremely careless examination if he does not drive a horse to discover whether he is a tongue-loller or side-puller, and if either conditions were present to tell the buyer and let him decide whether he wanted him or not.

*Dr. Quitman.*—It is very seldom when called upon to ex-

amine a horse that you will get to drive him ; in fact, the party who buys him may drive him and not discover he is a tongue-loller. It is very hard to find whether a horse is a side-puller or tongue-loller unless you drive him. You may examine such a horse and say he is all right if you do not drive him.

Dr. James Robertson now read a paper on "Observations on the Face in Examination for Soundness," as follows :

As the horse is gifted with the power to think, to reason about things and objects of his own sphere, to recognize facts of his experience and memory, it must be evident to every one that any examination as to soundness would be incomplete without a careful consideration of his mental endowments. These qualifications we may learn largely through a study of the expressions of the face. The parts most particularly charged with the manifestations of the internal states of the animal are the eyes and the eyelids, the ears, the nostrils, the lips and the mouth. These organs by the different attitudes they assume, dejected by turns, gentlenesss, vivacity, anger, sadness, joy, pain, fear, courage, ferocity, indifference and stupidity. The importance of the mental make up of a horse becomes manifest when we consider the very close relationship existing between many of these mental conditions and pathological conditions that are influenced by them.

Excessive fear and ferocity if chronic is generally accompanied by disturbances of some or all of the vital, digestive, secretive or excretive organs. Fright prepares the way for disease by undermining the nervous forces and weakening resistance and the consequences of excessive anger or viciousness we all know results in the disturbance of every faculty and function. The action of the heart is seriously impaired, digestive processes are instantly checked and do not proceed until the natural circulation of the blood is restored. Where there were mental aberrations that in my judgment would interfere with his health or usefulness, I would declare the horse unsound. Osteo-porosis, enlarged superior or inferior maxillary bones and fractures interfering with function I would consider unsound.

*Dr. E. L. Quitman.*—If Dr. Robertson takes into consideration the psychic condition and facial expression of animals, I would like to ask what guide he would have in examining mules ?

*Dr. Robertson.*—I am somewhat surprised that a veterinarian should ask the question who has to depend so largely on his knowledge of the animal from what he can see and find out of the pathology. There is no veterinarian who pretends to

diagnose a case on the thermometer and pulse and treat the case. There is a psychological condition that can be applied to animals. Some say they have a soul and others they have not. There is an expression in all animals by which we can tell to a certain extent the things that are passing through their minds, and I am surprised that a veterinarian should ask how this could be applied to a mule. It has been my misfortune not to be much associated with mules, and therefore I have not been able to study their physiognomy. When you consider the number of strange horses that are led into the ordinary blacksmith shop, it is astounding why you never hear of a horse-shoer being kicked. It is because the horse-shoer knows pretty well how to behave himself around certain horses, and we all know the disposition of a horse the more we are associated with him. Veterinarians who are careless and rough seldom meet with success in the treatment of horses on account of their actions. I know a man who is careless and rough in the handling and treatment of horses, and I have seen horses become extremely nervous on account of it, and I contend that this psychological condition should be carefully observed. I do not pretend to be a physiognomist and to read expressions, but every horse has a general expression that leads us to be careful in going around him. I, for instance, now recall the case where a horse will drive double under ordinary circumstances for 15 or 20 miles, but if you take him and hitch him into a top buggy you cannot drive him over a mile. The reason is that one day when he was hitched the top buggy caught in a hook and he became frightened.

*Dr. Quitman* related the story of a pleasant mule which was very vicious when meddled with.

*Dr. Hawley*.—Does Dr. Robertson mean to say that an animal can be psychologically unsound?

*Dr. Robertson*.—Yes, sir. I consider that a horse can be psychologically unsound. The line is well drawn. A horse that is a dummy and his brain is not in proper working order is unsound, and the line of demarcation is well marked. I have tried to show the connection with the mind and the work of the animal. I think the connection is very close. A man may be sound in body, but in mind he may have a paresis. I think it is as necessary that a horse have a sound mind and body, and we must take note of the horse's mind. Excessive viciousness I regard as an unsoundness. We must take everything into consideration that protects the physiological combination. A horse

must have a sound body and mind. I have rejected several horses on that account.

The next order of business being new business, it was moved by Dr. Nelson, seconded by Dr. Ryan that a reconsideration of the vote taken at the last meeting in regard to the expulsion of Drs. Pierce and McGraw, be held, a standing vote being taken. On count it was ascertained that eleven members desired reconsideration, while five did not. The vote being two-thirds affirmative, a new vote on expulston will be held at the next regular meeting. Owing to a spirited discussion as to members voting who had not paid their dues, it was held by the President that a delinquent member could not vote. Motion for appeal was taken to this ruling by Dr. E. L. Quitman, seconded by Dr. Dubia. Voted and carried. The President stated that in making this ruling he was only living up to the by-laws of the society, as appears in Article IV, section 1 and 3, and that the appeal taken was not from the President but from the society's own by-laws. That unless these by-laws were lived up to and enforced by the members, that he should tender his resignation. This was followed by a withdrawal of Dr. Quitman's motion by Dr. Quitman, with the hope that the seconder would also withdraw his second to the motion, which was not done. On motion adjournment.

L. CAMPBELL, D. V. S., *Vice-President and Secretary.*

#### IOWA STATE VETERINARY MEDICAL ASSOCIATION.

The tenth annual meeting was called to order in Des Moines at 10 A. M. by President G. A. Johnson. There were present Drs. S. H. Johnson, W. B. Niles, A. A. Peters, F. M. Roys, P. Malcolm, C. E. Stewart, H. L. Stewart, J. G. Parslow, J. I. Gibson, J. W. Griffith, E. A. Buxton, J. A. Campbell, A. T. Peters, H. McLeod, P. O. Koto, W. F. Lazear, A. S. Brodie, G. A. Johnson, G. A. Scott, H. E. Talbot, J. L. Williamson, W. H. Austin, D. H. Miller, G. M. Walrod, C. J. Hinkley, R. A. Craig and J. E. Brown.

Minutes of previous meeting were read and approved.

Dr. G. A. Scott was appointed to fill vacancy on Board of Censors.

The President's address was delivered and discussions followed.

Reading of correspondence was next in order, and letters from Drs. L. A. Thomas, E. Besser, W. L. Williams, Dr. W. A. Heck and many others were read.

Dr. Gibson moved that as Dr. L. A. Thomas had been at considerable expense as a member of the Legislative Committee, and had been a creditable member of our association before taking up the medical profession, that his dues be credited up in full and he be made an honorary member. Seconded and carried.

The resignation of Dr. W. A. Heck was accepted, and he was made an honorary member so long as he remained a non-resident of the State.

The Treasurer's report, showing all debts paid and a balance of \$10.48 on hand, was read and referred to an auditing committee. The President appointed as auditing committee Drs. W. H. Austin, C. E. Stewart and C. J. Hinkley.

The Secretary's report was read, and discussions followed on tuberculin and tuberculin tests, mallein and mallein tests, advisability of making an effort to place veterinarians on the programme of farmers' institute and stock meetings, as a means of educating the farmers and advancing the interests of the profession in the State.

The Board of Censors reported favorably on the applications for membership of Drs. G. P. Statter, E. A. Buxton, A. L. Brodie, R. A. Craig, F. M. Roys, and the same were duly elected to membership.

Dr. A. T. Peters, of Lincoln, Neb., was present and extended an invitation to the members of the I. S. V. M. A. to be present at the meeting of the Nebraska Association on Jan. 18, 1898.

Dr. J. I. Gibson, State Veterinary Surgeon of Iowa, announced that his annual report had been printed, and that he would send any one a copy who desired it.

Meeting adjourned until 1.30 P. M.

*Afternoon Session.*—Meeting called to order by President Johnson.

Report of Committee on Disease and New Treatment, was made by Dr. W. B. Niles, Chairman. Discussions followed on subjects referred to in the report. Corn-stalk disease was discussed at considerable length.

Cases of peculiar interest were reported by Drs. Gibson and Austin, of an outbreak of infectious catarrhal disease in cattle.

Dr. Koto reported a case where a piece of glass was removed from the under side of a mare's tail, supposed to have entered the body by way of the mouth and stomach.

Dr. Peters reported a case where a whip stalk had been substituted for a probang to relieve choking in a cow; it was broken, and a piece went down into the stomach; some two

years later an abscess formed in the flank, and on being opened the piece was found and removed.

Dr. Brown reported a case where a sharp-pointed, headless nail had been swallowed by a cow with the food, and passed from the stomach through the diaphragm to the heart.

Several other cases of a similar interesting nature were reported by Drs. Campbell, Walrod, Austin, Gibson, Miller and others.

Report of Committee on Articles for Newspaper Publication was made by Dr. W. B. Niles, Chairman.

Report of the Auditing Committee stated that the Treasurer's accounts had been examined and found correct. Report was adopted and committee discharged.

Regarding papers by veterinarians at institutes, etc., Dr. Gibson moved that Dr. Niles be made a committee to assign papers, or subjects, and essayists as suggested in the Secretary's report. Seconded and carried.

Dr. Gibson offered a resolution referring to the U. S. V. M. A. meeting at Omaha.

Dr. Brown moved that a committee of three be appointed by the chair on resolutions, and that this resolution be referred to them. Seconded and carried. Chair appointed as Committee on Resolutions Drs. W. B. Niles, S. H. Johnson and J. H. McLeod. The chair was authorized to appoint a committee to investigate the printing of the report of the meeting and to report at a later session. Chair appointed Drs. Brown, Niles and Gibson.

Dr. S. H. Johnson moved that two delegates be elected by ballot to represent this association at the meeting of the U. S. V. M. A. Seconded and carried.

Meeting adjourned until 7.30 P. M.

*Evening Session.*—Joint meeting of I. S. V. M. A. and Iowa Agricultural Society was called to order by President Johnson, at 7.45 P. M.

Dr. J. I. Gibson was introduced and read a paper on the subject of "Actinomycosis."

Dr. A. T. Peters, of Lincoln, Neb., read a paper on "Immunity." After the reading of this paper, a large number of very fine stereopticon views illustrating the two papers were thrown upon the canvas, and were greatly enjoyed by all present.

Discussions were indulged in for only a short time until President Jno. Cownie, of the State Agricultural Society, arose

and extended a most cordial invitation to the members to attend their banquet.

Dr. Gibson moved to accept the invitation; seconded and carried.

Adjourned until next morning at 9.30.

*Morning Session, Second Day, January 13.*—Meeting called to order by President Johnson at 9.30 A. M.

Discussion on Dr. Peters' and Dr. Gibson's papers was taken up, and ran along the line principally of preparing serum, hog cholera, treatment, etc.

Dr. J. G. Parslow was then introduced and read a paper on the subject of "Reflex Paralysis; or, Paralysis from Indigestion,"\* after which discussions followed.

Dr. J. W. Griffith was called and read a paper entitled "Dairy Sanitation," and discussions followed.

Dr. J. H. McLeod then read a paper entitled "Notes from Case Book." Discussions followed on umbilical hernias, and methods of operation for same.

Dr. Emmert, member of the State Board of Health, and State Senator-elect, being present, was introduced and spoke on the prevalence of tuberculosis in the State, and of its spread through importation of Eastern dairy cattle into Iowa. The doctor outlined a bill which he proposed to introduce in the State Legislature, that would require that all cattle shipped into the State should be accompanied with a certificate of tuberculin test. Discussions followed by quite a number of the members, and the hearty coöperation of the association was pledged. Dr. Emmert also spoke of a bill intended to prevent the spread of hog cholera, by strict quarantine measures, which he would probably introduce.

Adjournment was then made until 4 P. M., so the members could attend the inaugural exercises of Governor-elect Shaw.

*Afternoon Session, January 13.*—Meeting called to order at 4 P. M. by President Johnson.

Dr. S. H. Johnson read a paper on the subject, "Removal of Clitoris to Cure Viciousness," which went to show that the operation had been followed by very satisfactory results in several cases. Discussions followed on the operation and its results; also on the operation of ovariotomy.

Discussions closed and the election of officers was made the next order of business, which resulted as follows; President, Dr. S. H. Johnson, Carroll; 1st Vice-President, Dr. G. A. Scott,

\* Published in February REVIEW.

Independence; 2d Vice-President, Dr. J. G. Parslow, Marshalltown; Secretary and Treasurer, Dr. J. E. Brown, Oskaloosa. Board of Censors, Dr. W. H. Austin, Newton; Dr. D. H. Miller, Harlan; Dr. J. H. McLeod, Charles City. Delegates to U. S. V. M. A. meeting—Dr. P. O. Koto, Forest City; Dr. H. E. Talbot, Des Moines.

The Committee on Printing of Report of Meeting reported that the same might be printed in the State Agricultural Report free of charge to the association and a sufficient number of copies obtained for our members.

On vote the report was received and the Secretary instructed to prepare the notes and papers for publication, and forward them to the Secretary of the State Agricultural Society.

The Committee on Legislation reported through its chairman, Dr. Gibson, which report was received and committee discharged.

Moved by Dr. Niles that the President and Secretary should constitute a committee to voice the sentiment of the association, and coöperate with the State Veterinary Surgeon in legislative matters. Seconded and carried.

The Committee on Resolutions reported the following:

WHEREAS, We learn from Dr. Peters that the meeting of the U. S. V. M. A. will be held in Omaha next September,

*Resolved*, That we the members of the I. S. V. M. A. rejoice with the Nebraska State Veterinary Medical Association and the veterinarians of the West in the location of the U. S. meeting, and pledge to the Nebraska Association our coöperative action in receiving the members of the United States Association.

*Resolved*, That we recommend a joint meeting of this association and the Nebraska Association on the first day of the meeting of the United States Association in Omaha.

WHEREAS, Senator Emmert, of the Iowa State Board of Health, has kindly appeared before the Iowa State Veterinary Association for the purpose of explaining proposed legislation, and asking for the coöperation of the society; therefore, be it

*Resolved*, That the members of the Iowa State Veterinary Association, in convention assembled, express their great appreciation of the interest shown by Dr. Emmert in the live stock industry of the State, and pledge him their hearty support and coöperation in securing the passage of the proposed bill to prevent the introduction of bovine tuberculosis into the State, and other legislation along sanitary lines.

*Resolved*, That we extend our sincere thanks to Dr. Peters for the great interest he has taken in our meeting, for the reading of his very able paper on "Immunity," and for the exhibition of the specimen in connection therewith, also, to Dr. Scott for the use of the stereopticon.

*Resolved*, That the members of the I. S. V. M. A. extend their thanks to the State Agricultural Society for their kind invitation to their annual banquet, and for the general interest they have shown in this meeting.

*Resolved*, That this association tender its sincere thanks to the management of the Savoy Hotel for the courtesies extended to the association, and for the rooms during the annual meeting.

[Signed.]

W. B. NILES  
J. H. MCLEOD  
S. H. JOHNSON } Committee on Resolutions.

The above resolutions were adopted, and ordered spread upon the minutes.

Dr. J. I. Gibson then read a paper, subject, "General Sanitation," and discussions followed.

Dr. Brown moved that the Committee on Disease and Treatment be continued another year. Motion seconded and carried.

On motion, the meeting adjourned to meet at the call of the President and Secretary in Des Moines, next fall or winter.

JNO. E. BROWN, *Secretary.*

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#### CALIFORNIA STATE VETERINARY MEDICAL ASSOCIATION.

The annual meeting was held in the Baldwin Hotel, San Francisco, on December 8th, 1897, at 11 o'clock A. M.

The meeting was called to order by the Secretary, the President and Vice-President both being absent. Upon motion by Dr. Magowan, the meeting adjourned to meet at the hospital of Drs. Pierce and Archibald, of Oakland, at 2 o'clock P. M.

At 2 o'clock P. M., pursuant to adjournment, it met at the hospital of Drs. Pierce and Archibald, and was called to order by the President, Dr. R. A. Archibald. The roll was called, and a fair attendance was present. The minutes of the previous meeting were read approved.

*Unfinished Business.*—The name of Dr. F. Forrest, of San José, was dropped from the roll of membership for unprofessional conduct and assuming a title to which he had no just claim.

The subject matter of the appointment of a Committee on Diseases was next taken up. Considerable argument was offered on the subject, and upon motion a committee was elected as follows: Dr. R. A. Archibald, of Oakland; Dr. H. A. Spencer, of San José; Dr. C. B. Orvis, of Milton; Dr. R. T. Whittlesey, of Los Angeles; Dr. J. Graham, of Fresno; Dr. G. F. Faulkner, of Salinas, and Dr. D. F. Fox, of Sacramento.

*Report of Secretary and Treasurer.*—The Secretary's report showed that he had written some 160 letters, had notified all members of the meetings, had sent each member a statement of his standing as regards dues, etc.; had collected during the year \$58.80, had a balance on hand of \$20.00 of assessments which had been collected the previous year, making a total of \$78.80, all of which had been turned over to the Treasurer and a receipt taken therefor. The report was adopted as read.

The Treasurer's report showed that at the beginning of the year he had a balance on hand of \$33.70, that he had received

during the year \$78.80, making a total of \$112.50. The disbursements during the year had amounted to \$50.00, leaving a balance on hand of \$62.50. The report of the Treasurer was adopted as read.

*Election of Officers* for the ensuing year was next taken up and resulted as follows: President, Dr. R. A. Archibald, of Oakland; Vice-President, Dr. G. F. Faulkner, of Salinas; Secretary, Dr. D. F. Fox, of Sacramento; Treasurer, Dr. C. L. Magowan, of Sacramento. Board of Examiners—Dr. H. A. Spencer, Dr. Thomas Maclay, Dr. F. E. Pierce, Dr. A. M. McCullum, and Dr. J. Graham.

*New Business*—Dr. Pierce introduced the subject of a location of an experiment station on the Pacific Coast. Considerable discussion followed, and it was the general sense of the association that it would be of great benefit to the profession in this State.

Dr. Magowan spoke of the advisability of the association prosecuting men who are practicing veterinary medicine contrary to the law regulating the practice of veterinary medicine and surgery in this State. After considerable discussion the matter was laid over until the next meeting.

Upon motion of Dr. H. A. Spencer, the students of the Veterinary Department of the University of California were extended a standing invitation to be present at any or all of the meetings of this association.

At 5 o'clock P. M. the meeting adjourned for dinner.

Upon the kind invitation of Dr. F. E. Pierce, the members assembled at his residence, where the spacious dining room was beautifully decorated with a profusion of flowers and the table richly spread with all the delicacies of the season, and all present enjoyed the kind hospitalities of the host and hostess for an hour or more beyond expression.

At 8 o'clock P. M. the meeting re-convened; among the visitors present were Dr. H. N. Rowell, Health Officer of the city of Berkley; Dr. H. N. Rucker, President of the Oakland Board of Health, and Dr. J. T. Kitchings, member of the Oakland Board of Health, and a few of the students of the Vet. Dept. of the University of California.

President Dr. R. A. Archibald called Dr. H. A. Spencer to the chair and proceeded to read a most excellent and well prepared paper on the subject of "Tuberculin and the Manner in which it Acts as a Diagnostic Agent."

The paper was well presented and was thoroughly dealt with in the discussion which followed.

Dr. H. A. Spencer followed with an excellent selection of stereopticon views, which he exhibited for an hour or more to the utmost satisfaction of those present, and upon conclusion was most highly complimented for the manner in which he had entertained us.

It now being after 11 o'clock, the members of the Health Department of Oakland and Berkley were obliged to take their departure, but before doing so a recess was declared and all present were shown to the dining room of Dr. Archibald, where an elaborate feast had been prepared, and the kind hospitalities of Dr. and Mrs. Archibald will long be remembered by those who were fortunate enough to be there.

After the meeting had re-convened Dr. F. E. Pierce came forward with a most excellent paper on the subject of "Influenza." The doctor described in detail the different forms of the disease and quoted a number of other diseases which were termed influenza that deserved better classification. Quite a long and interesting discussion followed, in which nearly all present took an active part.

Essayists for the next meeting were appointed as follows:—Dr. G. F. Faulkner, of Salinas; Dr. H. F. Spencer, of San José, and Dr. J. H. Eddy, of Stockton.

Dr. Fox moved and Dr. Spencer seconded that the thanks of this association be tendered Drs. Pierce and Archibald, and their wives, for the splendid manner in which they had entertained us during the meeting. Carried unanimously and it was so ordered.

There being no further business before the meeting, it adjourned to meet at the Baldwin Hotel, San Francisco, Cal., on Wednesday, March 9, 1898.

D. F. Fox, *Secretary.*

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VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular monthly meeting of the Veterinary Medical Association of New York County was called to order at 8.30 o'clock, Wednesday evening, February 2d, at the Academy of Medicine, with the President, Dr. Huidekoper, presiding. The following members answered the roll call: Drs. Bell, C. C. Cattanach, J. S. Cattanach, J. S. Cattanach, Jr., Dickson, Delaney, Ellis, Farley, Gill, Huidekoper, Hanson, Neher, O'Shea, Ryder, and Sherwood (15). There were also present as visitors Dr.

Grenside, of New York ; Drs. Ackerman and Goubeaud, of Brooklyn ; Dr. Nicholas, of Mt. Vernon, and Messrs. English, Fretz, Fox and Sandford, students from the A. V. C.

Moved and seconded, that guests be given the privilege of the floor in debate. Carried.

*Report of Judiciary Committee.*—Dr. O'Shea, Chairman, reported that the jury exemption bill was introduced in the Senate by Mr. Sullivan, January 5th, and referred to the Codes Committee, the same having been introduced in the Assembly by Mr. Sullivan January 2 and referred to Codes Committee. The committee called the Civil Service Commission's attention to the law regarding the practice of veterinary medicine in New York State, and he promises if presented in writing he will see that the Commission follow the spirit of the law regarding examinations for meat and milk inspectors. The Judiciary Committee is looking up illegal practitioners, and just as soon as sufficient evidence can be obtained they will be prosecuted. Moved and seconded, that the report be accepted. Carried.

*Report of Committee on Ways and Means.*—Dr. Bell, Chairman, stated that this committee is making arrangements for the five remaining meetings of the year, and have arrangements for the March meeting about completed. Moved and seconded that the report be accepted. Carried.

*Reading of Papers.*—Dr. Neher read a carefully prepared paper on "Development of Bone, showing under the Microscope the Ossification Zones or Centres."

Following this Dr. Bell read a very interesting and practical paper on "Rubber Shoes for City Horses," which was freely discussed by the members present.

During the reading of Dr. Bell's paper, Dr. Neher was setting up his microscope, to which the members had free access during the rest of the evening.

*Applications for Membership.*—Applications for membership in the association were filed by Drs. Ackerman and Grenside. Applications referred to the Board of Censors. Moved and seconded, that a recess of twenty minutes be taken while the Board act upon the applications. Carried. Board of Censors favorably recommended Dr. Ackerman and Grenside, and they were declared members of the association.

*New Business.*—Moved and seconded that the Judiciary Committee formulate a letter, to be signed by the President and Secretary of the association, to be sent to the President of the Civil Service Commission. Carried.

Moved and seconded, that a vote of thanks be extended to Drs. Neher and Bell for their papers. Carried.

Moved and seconded, that the meeting adjourn. Carried.

ROBT. W. ELLIS, D.V.S., *Secretary.*

VETERINARY MEDICAL SOCIETY OF THE UNIVERSITY OF PENNSYLVANIA.

The meetings held during the month of January were of special interest, as the subjects for debate and for the papers to be read were well selected, and all the members seemed to be working with a common effort to bring every part up to the standard. The money taken in by the Treasurer during the last meeting amounted to eight dollars and fifty cents. Mr. Stehle's name was proposed and duly elected a member of this society.

One of the most important changes in the society was the election of new officers, which resulted as follows: Honorary President, Prof. John W. Adams (he was unanimously elected to succeed Prof. R. S. Huidekoper); President, J. E. Spindler; Vice-President, G. Chesley; Treasurer, S. Blount; Librarian, E. Newcomer. Executive Committee—S. McClure, '98; H. Hoopes, '99; J. P. Miller, '99; E. Corman, '00.

Some of the interesting and instructive papers read to the society were: "Etiology of Epizootic Abortion," by Prof. S. J. J. Harger. He traced the full course of the disease, and the members present were greatly benefitted by the paper.

Mr. E. Newcomer presented the society with an excellent paper. He traced the horse from its first knowledge in history until the present time. He showed some of the important changes that have taken place in the equine family, the most important of which was the great development of speed. The paper was highly appreciated by the members present.

Mr. Hoopes read a very interesting article on "What Parts Have the Arabian, Turk and Barbary Horses Played in the Foundation of the Racing Breeds of Horses?" Mr. Hoopes thought that subjects of this class were very important for the veterinary student to be well versed upon, as in after life he will constantly come across instances in which he will be called upon to discuss this question, *e. g.*, if called upon to speak at some institute, or grangers' meeting, such a subject if well delivered would receive the highest applause.

The subjects for debate during this month's meetings were as follows: "*Resolved*, That veterinarians should be active members of humane societies." Affirmative, Messrs. McGerry,

Taylor and White. Negative, Messrs. Murphy, Miller and Beaver. The Judges, Messrs. Kirby, Newcomer and Hughes, decided in favor of the negative.

*"Resolved,* That the United States Government should give the veterinarian in the United States Army the rank and pay of Second Lieutenant." Affirmative, Messrs. Spaethe, Jacobs and Nolan. Negative, Messrs. Murphy, Townsend and Reardon.

Mr. Spindler made a report in behalf of the supper committee, having paid for the supper and received a receipt in full. It was moved and seconded to offer a vote of thanks to the committee.

It was also moved and seconded to offer a vote of thanks to the outgoing officers.

The society adjourned at 10:15 P. M.

M. JACOB, *Secretary.*

#### VETERINARY MEDICAL SOCIETY OF THE ONTARIO VETERINARY COLLEGE.

The regular weekly meetings of the society were very interesting during the past month. The papers were well written and many valuable points were brought forward during the discussions. As every student is required to be with a practitioner during the summer vacation the methods of many eminent veterinarians are in this way communicated to the students. They therefore find the meetings of great value in obtaining both theoretical and practical knowledge. The following is a list of the papers read:

Essays.—P. L. C. Gauntt, "Chloroform as an Anæsthetic"; J. S. McIntyre, "Ovariotomy in Cow"; L. Bailey, "Nasal Gleet in Sheep"; A. G. Van Tine, "Abortion"; E. H. Lawley, "Anthrax"; J. G. Cruikshanks, "Indigestion in Horse"; H. P. Reed, "Sanitas"; B. W. Powell, "Modes of Death"; C. H. A. Stevanosn, "Open Joint"; W. A. Campbell, "Periodic Ophthalmia"; J. Dixon, "Aconite"; W. R. Clark, "Means of Arresting Haemorrhage"; A. H. Kaull, "Influenza"; W. G. Hyett, "Pulmonary Emphysema"; A. P. Lubach, "Pleuro-pneumonia"; D. Allen, "Potassium Bromide".

Communications.—A. D. McLachlin, "Rumenotomy"; A. Jordan, "Fracture of Premaxilla"; E. C. Elwes, "Canker in Foot"; L. T. Dunn, "Myorrhesis"; C. W. Fisher, "Phymosis in Bear"; E. T. Cunningham, "Rupture of Stomach"; Hamlet Moore, "Azoturia"; H. W. Stedman, "Puncture of

Foot"; F. M. Hayward, "Capped Elbow"; G. P. Hayter, "Prolapsus Ani"; G. W. Higginson, "Foreign Body in Posterior Femoral Region"; B. Royer, "Tympanites in Ox"; A. I. Sorenesen, "Mammitis in Sow"; W. L. Adams, "Choking"; T. Rowland, "Tympanites in Ox"; W. R. Clark, "Acute Laminitis."

C. W. FISHER, *Secretary.*

#### KEYSTONE VETERINARY MEDICAL ASSOCIATION.

The February meeting of the Keystone Veterinary Medical Association was held on the 8th inst., Dr. Thomas B. Rayner presiding, as both the President and Vice-President were absent. But few members responded to roll-call, those present being Drs. W. H. Hoskins, W. S. Kooker, W. L. Rhoads, T. B. Rayner, C. J. Marshall and A. W. Lushington. Our list of visitors was also short at this meeting, there being but three or four present.

After the regular routine of business and discussion of the resolutions offered at the previous meeting to make the payment of \$5 initiation fee cover the dues to the succeeding annual meeting, which was unanimously adopted, Drs. Marshall and Houldsworth made a report at some length upon the extent to which dairies were under veterinary sanitary supervision.

Dr. Hoskins made a report upon the disturbance now in progress with the Board of Health upon the method of serving milk. Dr. Rayner appointed Dr. Pearson as an active member of the committee to keep in touch with this movement.

Dr. C. J. Marshall now read an interesting paper on the better methods of handling milk.

Notice was given of the annual meeting of the Pennsylvania State Veterinary Medical Association, to be held in Philadelphia, March 8th and 9th.

The meeting adjourned till March 8th, when it will convene in conjunction with the State Association.

DR. W. L. RHOADS, *Secretary.*

#### PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

We are advised by Secretary W. L. Rhoads that the annual meeting will be held in Philadelphia, March 8 and 9. The local committee of arrangements consists of Drs. W. S. Kooker, Robert Gladfelter, Charles Williams, Walter L. Hart, J. D. Houedsworth, and C. J. Marshall.

The programme as far as arranged is as follows:

March 8—Routine business and election of officers 10 to

12.30; 12.30 till 2 P. M., lunch; 2 till 4, surgical operations; 4 to 6, reports; 6 to 7, recess; 7 to 8, illustrated lecture with lantern slides by Dr. Ravenel on "General Bacteriology"; 3.30 to —, banquet to members and guests by Dr. Pearson.

March 9—Regular business, beginning at 10 A. M. sharp. Papers—Dr. Jno. W. Adams (subject not stated); Dr. M. E. Conard, "What Our Dairy Cattle Inherit"; Dr. Frances Bridge (subject not stated); Dr. H. B. Felton, "Pasteurization versus Purity"; Dr. J. F. Butterfield, "Report of a Case of Distressed Breathing in a Cow"; Dr. H. P. Kelly, "Eversion of the Uterus in Cows"; Dr. J. C. Michener, "Feeding Animals"; Dr. C. J. Marshall, "What a Veterinarian Should Know about Milk"; Dr. Chas. Bland (subject not stated); Dr. Ravenel, "The Milk Supply from a Bacteriological Standpoint."

Applications for membership have been received from Morris W. Keck, V. S., Slatington; A. W. Lushington, V. M. D., Philadelphia; and Geo. W. Shaw, V. M. D., University of Pennsylvania (Veterinary Department).

#### UNITED STATES VETERINARY MEDICAL ASSOCIATION.

President Salmon announces the appointment of the following Committee of Arrangements for the Omaha meeting: Dr. A. T. Peters (Chairman), Lincoln, Neb.; Dr. H. L. Ramacciotti, Omaha, Neb.; Dr. John Hall, Falls City, Neb. This committee has in a measure outlined plans for entertainment, and no efforts will be spared to make the occasion one of comfort and pleasure to all who attend.

Secretary Stewart requests us to ask all who expect to present papers at Omaha to notify him promptly of such intention.

The feeling among Western veterinarians is very hopeful. The rapid advance in the value of horses has materially increased their business, a circumstance which will render it possible for a large number of them to attend the coming meeting.

The veterinarians of Nebraska and Iowa are a unit in their desire to make the Omaha convention superior in every sense to all predecessors.

While the important subject in the State medicine section of tuberculosis will command its usual prominence, we would suggest that it does not this year become so to the exclusion of all others. Meat inspection is becoming such a factor in the veterinarian's calling that more prominence should be given to it

by the National Association, and we have no doubt but that it will be made a leading topic of discussion—to the end that resolutions bearing upon its national and municipal necessity will be passed, with strong demands for an extension of the service.

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#### MASSACHUSETTS VETERINARY ASSOCIATION.

The regular monthly meeting was held at No. 19 Boylston Place, December 22, 1897. President Winchester in the chair. Members present: Drs. Burchstead, Dyer, Emerson, Frothingham, Lee, Lewis, McLaughlin, Parker, Peters, Pierce, Williams, Winchester, Winslow, Stickney. Dr. J. C. Cutting, of Medford, and Dr. Charles H. Higgins, of Dover, were elected members.

The Legislative Bill was adopted by the association, and President Winchester appointed Drs. McLaughlin, Lee, Frothingham, Pierce, Labaw, Rogers, Cronon and Winchester a committee to take charge of the bill before the legislature.

HENRY S. LEWIS, *Secretary.*

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#### NEWS AND ITEMS.

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THERE will be a joint session of the Keystone and Pennsylvania State Veterinary Medical Associations in Philadelphia on March 8th.

W. G. LANGDON has been elected Veterinarian of the North Dakota Agricultural College and Experiment Station to succeed Dr. T. D. Hinebaugh.

DIRECTOR D. MCEACHRAN, of the Veterinary Department of McGill University, is on a trip of scientific observation through England, Denmark, France and Germany.

THERE IS NOTHING SLOW ABOUT IOWA.—The State Board of Health now has a veterinarian for its president.. Dr. J. I. Gibson, State Veterinary Surgeon, is the man who fills that honorable position.

THE course of lectures on practical bacteriology held by Dr. Roux at the Pasteur Institute last two months, is so well attended that one must make application two years ahead before he can be admitted.

THE value of all the live stock in the country on January 1, 1897, was estimated to be \$1,886,959,000. On January 1, 1898, it was estimated at \$2,037,012,000, showing an increase in value in one year of \$150,053,000.

DIRECTORS MC EACHRAN AND LIAUTARD recently inspected the Pasteur Institute and the Alfort School, where Director Trasbot received them and showed them the arrangements of one of the best veterinary institutions on the Continent.

A CHICAGO MAN has made a steam bath cabinet for horses and expects to open up a horse Turkish and Russian bath establishment at the Harlem race track. It is offered as a substitute for "dope" and the electric battery in removing stiffness and soreness.

DR. NILES RECOVERING.—The many friends of Dr. W. B. Niles, of the Veterinary Department of the Iowa Agricultural College, will be pleased to learn that he is now convalescing from an attack of septicæmia, from which he was, for a time, very seriously ill.

"STAR POINTER" FOR EUROPE.—It is announced that James A. Murphy will take Star Pointer and Guinette (one of the most promising candidates for record honors next season) to the Continent next fall and give Europeans a view of a high-class side-wheeler.

GOVERNOR L. M. SHAW, of Iowa, has announced the reappointment of Dr. J. I. Gibson as State Veterinary Surgeon, almost a year before his present term expires. This is *prima facie* evidence of the satisfactory manner in which the business of that department has been conducted.

D. P. FRAME, M. D. C., of Colorado Springs, who has held the position of Food Inspector for that city for some time, and who is Secretary of the Colorado State Veterinary Medical Association, has received an appointment under the Bureau of Animal Industry, and assigned to duty at Kansas City.

REINDEER FOR ALASKA.—The United States Government has an importation of 530 reindeer now on the Atlantic *en route* for New York. They were purchased in Norway by Lieut. Devore, of the War Department, and are to be sent to Alaska. Five hundred tons of Iceland moss are aboard the vessel to be used as food for them.

SMALL PERCENTAGE OF LOSS IN SHIPPING CATTLE TO EUROPE.—Shipping live cattle across the Atlantic is attended with comparatively small loss nowadays. During 1897 one of the large steamship lines took 40,725 head from Boston and the loss is reported at only twenty-eight head. Better ventilation between decks in hot weather is about the only improvement that is now needed on the steamers.

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THE BONES OF GEORGE WILKES.—Recently Col. W. L. Simmons, of Lexington, Ky., who owned the great stallion George Wilkes, and on whose farm he was buried, had his grave opened. Examination showed the bones to be in a perfect state of preservation, and they were exhumed and are now being mounted. When this work is finished the skeleton of the horse will be given to the Kentucky State College.

ACCORDING to the *Journal* (England), a home of rest is going to be created in London for horses, similar to the one already existing for dogs. The principal object will be to build an hospital for the convalescence and rest of lame or overworked animals. In other words, a large veterinary hospital. It is rumored that the Society for the Prevention of Cruelty to Animals is the instigator of the idea.

AT a supper among veterinarians, where horse meat formed the exclusive dish, an invited guest, feeling unwell, addressed his neighbor, a veterinarian, and said: "It is queer; I feel something working in me." "It is the horse that is trotting," answered the vet, and then, "Oh, no, he now gallops, he runs away," he added, when he saw the sick man leave the table to go outside and relieve his too sensitive stomach.—(*Semaine Veterin.*).

FEEDING MILLET TO HORSES.—Dr. T. D. Hinebauch, State Veterinary of North Dakota, has been experimenting with millet, and from his experiments and observations the author draws the following conclusions: Feeding millet alone as coarse fodder is injurious to horses. It produces an increased action of the kidneys and causes lameness and swelling of the joints. It causes an infusion of blood into the joints and destroys the texture of the bone, rendering it soft and less tenacious, so that the ligaments and muscles are easily torn loose. The experience of many farmers confirms the experiments.

HORSES GETTING HIGH.—The special sales of harness horses, says the *Gazette* of February 2, held last week at Chicago and East St. Louis demonstrate conclusively the strength of the market for horses of the right sort. Coachers and high-steppers are in the keenest demand. The top price of the two sales—\$1650, bid by a London dealer for a particularly high actor in the Sloan, Nims & Bratton sale at East St. Louis—indicates to what lengths the foreigners will go when their fancy is suited. New dealers are arriving with ample commissions, and the tone is very strong with the keenest of

competition, domestic buyers having waked up and gone after the kind that the foreigners are taking. It is a fact that New York for the first time in years is obliged to take a back seat in the buying. It is no longer profitable to purchase on this market for reselling in the East, as prices here are too high. Foreigners took the bulk of the best offerings at both the special sales mentioned.

**FEEDING HORSE MEAT TO POLITICIANS.**—The versatile veterinarian, William H. Pendry, who is as much of a military man as he is a veterinarian, and as clever a politician as he is a military man and veterinarian, is nothing if not original. He recently entertained the members of his Brooklyn political club at a beefsteak supper, and after all had eaten heartily, the information got abroad that the repast had consisted of a lame but healthy gelding, which the doctor had secured from one of his clients for the occasion. Most of the guests took the deception good-naturedly, and those who found objection are said to have been the most hearty eaters of what was pronounced excellent beefsteak.

**TUBERCULOSIS NOT HEREDITARY.**—As a result of tests made with a herd of tuberculous cattle, beginning two years ago, Professor Russell, of the Wisconsin Experiment Station, asserts that tuberculosis is not hereditary in cattle and that under proper isolation infected cows may be used for breeding purposes. Further experiments will be made in this line. The herd was tested two years ago last month and more than half was found diseased. The infected cattle were isolated and no further cases have been developed in those which were not diseased at the time of the test. The calves from the tuberculous cows are free from the disease. We are glad that scientists are coming to take a saner view of this matter. Heretofore about all that we have heard on the subject has been "kill, kill," whenever the animal reacted to a "dose" of tuberculin. The day of the extremists with the tuberculin test is passing. There is such a thing as protection to public health—and all favor it. There is also such a thing as wanton destruction of property that is the result of years of skillful breeding and that cannot be replaced as one replenishes a stock of lumber or pig-iron—and sensible men are now joining in protest against it. It is well that the scientists are finally getting on this side of the fence.—(*Breeder's Gazette.*)

**CONCERNING ESSENTIAL OILS AND SOME OF THEIR USES.**—We read recently in a book by Dr. Gordon Stables, entitled

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"A Guide to Health and Disinfection," that "Sanitas" disinfecting fluid was an excellent preparation for use in the bath, and the Doctor concludes his remarks by saying: "Surely King David used a similar bath to enable him to walk through pestilence unscathed." We do not suppose that the Doctor meant to state absolutely that this eminent king used "Sanitas" as we find it on the market to-day, but it is quite possible that during his lifetime he may have absorbed considerable quantities of the active principles that the "Sanitas" preparations contain, and have been benefitted thereby, for they are prepared in strict imitation of nature's process of converting the essential oils given off from the balsams, the pines, the eucalyptus trees, etc., into such oxidized compounds that they bring to the system oxygen in a form that can be freed as peroxide of hydrogen. Possibly had the concentrated product as prepared by the Sanitas Co., Limited, been available and used by the said king, he might have lived longer. The Sanitas preparations are extensively used by veterinary surgeons not only for dressing wounds, etc., but in the treatment of many diseases, and A. J. Sewell, M. R. C. V. S., writes of the satisfactory treatment obtained from the use of "Sanitas" disinfecting fluid in cases of cancer of the ear and skin diseases; and from "Sanitas" oil in the treatment of follicular mange. They also manufacture an excellent preparation for use in kennels known as "Sanitas" disinfecting sawdust. Write them at No. 636 West 55th Street, New York City, for a copy of their book, "How to Disinfect," which is full of useful information.

**GERMANY DOESN'T LIKE THE COMPETITION OF AMERICAN HORSES.**—The Prussian Minister of Agriculture announced last week that horses from this country develop influenza after importation, and stated that if importations increase he will be forced to adopt suitable quarantine protection. This announcement meets with very vigorous response in Washington. Secretary Wilson says that the statements of the Prussian Minister are unwarranted, and Dr. Salmon, Chief of the Bureau of Animal Industry, declares there is no influenza in this country so far as the Department of Agriculture can learn, and that if a horse suffering from the disease were shipped he would either be dead or recovered by the time he landed on German shores, as the duration of the disease is about two weeks, while it takes from two to three weeks for the freight boats to make the transatlantic voyage. Importations are likely to increase, as 224 horses left Chicago alone last week for Germany and the short-

age in that country is pronounced. The value of our horses sent to Germany last year was \$822,250, which shows the remarkable growth of the trade since 1893, when our exports amounted to \$79,950. Germany has recently taken action looking toward a careful examination of fresh fruit imported from America, on the ground that certain fruit diseases are being carried into that country on export goods. Indeed the first order was one of absolute exclusion of both fresh and dried fruit, but the American Ambassador protested so vigorously that the decree was finally modified to admit dried fruits as before and to subject fresh fruits to examination. At Washington the threat of quarantine against our export horses is regarded as a part of the trade war inaugurated against imports into Germany, and the feeling is undoubtedly in favor of very severe retaliatory measures if further interference with the trade is attempted.—(*Breeders' Gazette.*)

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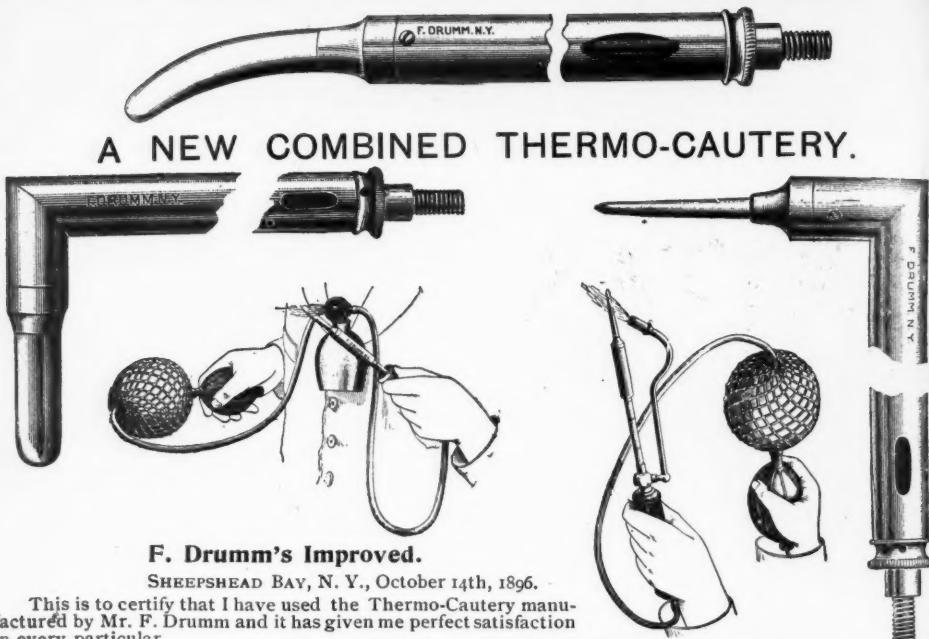
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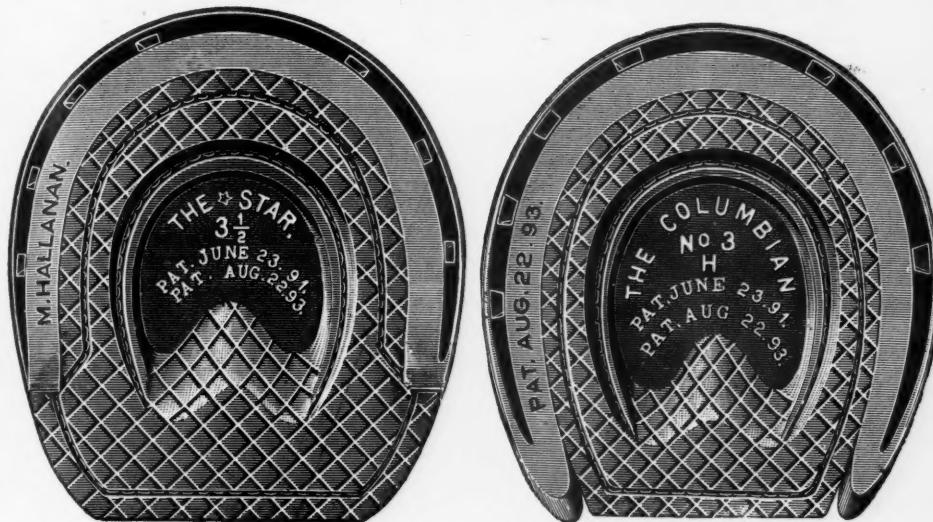
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One hundred injections, in 10 dose bottles,.....	16.50

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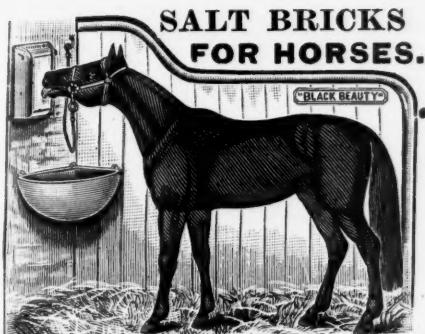
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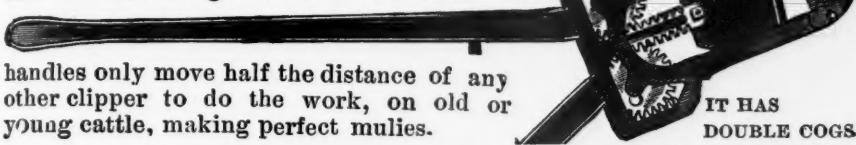
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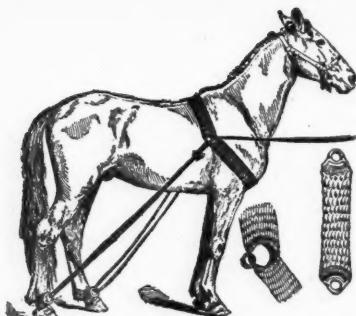
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## **ILLUSTRATIONS IN VOLUME XXI.**

---

Cystoma Dermalis, 53.

A New Universal Float, 60.

Luxation of the Femur, 255.

Clasps and Toe-Cracks, 319.

Rectal and Vaginal Irrigator, 334.

Extreme Luxation of the Patellæ in a Foal—

Fig. I.—Crouching Attitude of Foal due to Displacement of the  
two Patellæ, 447.

Fig. II.—External View of Right Stifle, 448.

Fig. III.—Oblique Lateral View of Right Stifle, 449.

Fig. IV.—Anterior View of Left Stifle with Femoro-Patellar  
Capsule Opened, 450.

Fig. V.—Oblique Lateral View of Left Stifle with Capsule  
Opened, 451.

Fracture in Utero, 566.

Amputation of the Penis, 711.

A Fire Department Veterinary Hospital, 782.

A Movable Calk Anti-Slipping Shoe, 783.

The Phonendoscope, 837.

Veterinary Surgeon Peas, 858.

The C  
State  
The I  
jorit  
Serum  
rhag  
Notice  
A .  
Tuber  
Easy U  
Prickin  
A Vic  
State  
Signs  
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Quack  
Frus  
Two

Bovin  
the  
Bai  
Azotu  
The I  
sis.  
Bariu  
Tre  
ges

## TABLE OF CONTENTS, VOLUME XXI.

### EDITORIAL.

The Question of Reciprocity among State Examining Boards.....		Are Fistulæ of the Withers Infectious? 376
The Review Has Attained Its Majority.....		The New York State Veterinary Medical Society..... 376
Serum-Therapy of Purpura Hæmorrhagica.....		Serotherapy of Tetanus. 439
Notice to Members of the U. S. V. M. A.....		The Nashville Meeting of the U. S. V. M. A. 440
Tuberculin and Malleine.....		The New York State Meeting. 441
Easy Urinary Analysis.....		The Review's Advice Followed. 442
Pricking à l'Americaine.....		A Library for the New York State Veterinary College. 443
A Vicious Bill before the New York State Senate.....		Section Work in the U. S. V. M. A. 525
Signs of the Times.....		Expert Veterinary Testimony Needed. 527
Illinois Veterinarians Up in Arms.....		Dr. W. H. Dalrymple. 527
Graduated Veterinarians of New York State.....		The Country Slaughter-House as a Factor in the Spread of Disease. 528
Get Ready for Nashville.....		Female Veterinarians. 595
No Fees for State Students at the New York State Veterinary College.....		Asinity of the M. D. on Veterinary Topics. 596
Still Silent.....		Tautological Extravagance. 598
American Veterinarians, Be Watchful.....		Higher Education. 598
The Tuberculin Test in Massachusetts.....		A Prophetic Vision Indeed. 598
Get Ready for Nashville.....		The Tuberculosis Crusade in Honolulu. 599
A Woman Veterinarian.....		The English Lady Veterinarian. 599
Amputation of the Horse's Tail for Fashion's Sake.....		Editorial Modesty. 599
The Revival of the Horse Industry.....		Sowing the Wind and Reaping the Whirlwind. 665
Are the Appointments of Quacks Infectious? .....	300	The Modern Horse Show. 667
United States Veterinary Medical Association.....	301	For the Improvement of Meat Inspection. 669
State Boards of Veterinary Examiners.....	302	Professional Courtesy. 669
Glanders—Its Contagion—Its Curability—Malleine.....	369	A Commendable Example. 670
A Reply? Yes! An Explanation? No!.....	373	The Future of Veterinary Education in New York State. 739
The Nashville Meeting and the Review.....	375	The U. S. V. M. A. to Meet in Omaha in 1898. 741
Quack Appointments Already Yielding Fruit.....	375	Keep Up the Work in Pennsylvania. 742
Two Excellent Appointments.....	376	An Interesting Discussion. 807

### ORIGINAL ARTICLES.

Bovine Tuberculosis in its Relation to the Human Family. By George H. Bailey.....	6, 77	Odontomes: Report of Three Cases. By J. F. Pease. 42
Azoturia. By John R. Hart.....	24, 95	Examination for Soundness. By H. D. Hanson. 46
The Board of Health and Tuberculosis. By A. S. Heath.....	33, 103	Cannabis Indica—Cannabis Americana. By Charles Williams. 106
Barium Chloride; Its Use in the Treatment of Colic and Acute Indigestion. By John E. Brown.....	38	Azoturia, with Strain and Atrophy of the Great Dorsal Muscles in a Mare. By W. L. Williams. 157

Why? By W. L. Rhoads.....	168	ment to the Pathological Laboratory. By James Law.....	547
What Prof. Bang's Work Teaches. By Leonard Pearson.....	169	Major McCann's Welcome to the U. S. V. M. A.....	553
Veterinary Science and Its Relation to the Public Health. By J. F. Ken- nedy.....	176	On the Use of Barium Chloride. By A. C. Hasslock.....	556
The Future of the Veterinary Profes- sion. By E. L. Volgenau.....	183	The Veterinarian and the Humanitarian. By W. H. Dalrymple.....	600
Three Consecutive Recoveries from Glanders. By W. L. Williams...	230	Inhalation Pneumonia. By W. L. Williams and P. A. Fish.....	609
Canine Practice, with Notes on Cases. By R. H. Harrison.....	234	Interesting Tuberculin Reactions. By F. S. Schoenleber.....	618
Diseases of the Heart and Blood Ves- sels. By J. A. Couture.....	240	Veterinary Journalism. By W. H. Dalrymple.....	620
The Veterinarian and the Horse- Shoer. By J. P. Adams.....	242	Some Remarks on Anti-Hog Cholera Serum. By C. Fisch.....	671
Salicylate of Sodium. By W. C. Hanawalt.....	249	Methods of Meat Inspection. By Leonard Pearson.....	679
European Chronicles.....	252	Milk Inspection. By James Hender- son.....	685
Infectious Abortion of Mares. By W. L. Williams.....	303	A Contribution to the Symptomatology of Rupture of the Diaphragm. By W. A. Heck.....	696
Acute Laminitis. By B. L. Clark...	306	Report of Two Surgical Cases. By Otto G. Noack.....	699
Anesthesia. By F. Torrance.....	311	A Rapid Method of Emptying the Stomach in Case of Poisoning. By J. H. Blattenburg.....	701
Was the Horse Indigenous to America. By W. J. Martin.....	317	Infectious Catarrhal Fever of Horses. By Roscoe R. Bell.....	744
Clasps and Toe-Cracks. By A. L....	319	Tuberculosis and Its Relation to the Veterinarian. By C. W. Fisher..	753
The Parasitic Ictero Haematuria of Sheep. By W. L. Williams.....	377	Electricity for Stricture of the Teat. By J. J. Drasky.....	759
Tetanus. By Leonard Pearson.....	380	European Chronicles. By Prof. Li- autard.....	761
The Tuberculin Test for Tuberculosis in Milch Cows. By David S. White	386	Light as a Bactericide—Phototherapy. By H. deVarigny.....	763
Specific Cures in Certain Diseases. By S. H. Ward.....	393	Reflex Paralysis, or Paralysis from In- digestion. By J. G. Parslow.....	769
Extreme Luxation of the Patellae in a Foal. By W. L. Williams.....	444	Remarks on the Nature and Differen- tiation of the Infectious Swine Dis- eases in the United States. By Veranus A. Moore.....	813
Serotherapy of Tetanus. By I. Nocard.....	453	Cerebro-Spinal Meningitis. By W. J. Martin.....	829
Results Attained and Attainable by State Control of Tuberculosis. By John M. Parker .....	462, 536	The Phonendoscope in Medical and Veterinary Practice. By A. Va- chetti.....	837
Treatment of Thoroughpin. By Charles Cowie.....	471		
Glanders—Use of Malleine in Doubt- ful Cases.....	474		
The Goat as a Means of Checking the Spread of Contagious Diseases to Man and Domestic Animals. By A. S. Heath.....	528		
How to Prepare Products for Ship-			

## REPORTS OF CASES.

Obstinate Case of Impaction of Small Intestine. By Robert W. Ellis...	49	Amputation of the Tongue. By W. J. Martin.....	54
Cystoma Dermalis. By L. E. Will- young.....	52	Canine Convulsions Induced by Eating Plum-Stones. By L. E. Willyoung	55
Two Interesting Post-Mortem Lesions. By E. L. Volgenau.....	53	Parasitic Bronchitis. By Sidney D. Meyers.....	108

## TABLE OF CONTENTS, VOLUME XXI.

v

547	Outbreak of Cerebro-Spinal Meningitis. By E. F. Koehler.....	109
553	Experiences with Sanmetto in Various Diseases. By W. Chas. Covey....	110
556	The Vagaries of Influenza in Green Horses. By Francis Abele, Jr.....	186
jan.	Moderate Exercise Successful in a Case of Iliac Thrombosis. By Francis Abele, Jr.....	187
600	Luxation of the Femur. By Wm. V. Lusk.....	254
609	Lipoma Causing Death. By J. F. Roub.....	256
618	Supernumerary Testicles. By H. H. Newcomb.....	257
620	Rupture of the Flexor Metatarsi. By Wm. V. Lusk.....	257
671	A Foetal Monstrosity. By R. Kerr.....	258
679	Infectious Pneumonia in North Carolina. By J. W. Petty.....	321
685	Hermafrodisim. By J. A. Couture.....	321
696	Polyuria from Turpentine Irritation By J. W. Petty.....	322
699	Interesting Recovery from Hydrops Amnii and Ascites. By M. J. Jones	395
701	Obstruction of Small Intestine of Dog by Block of Wood. By Chester Miller.....	398
744	Ruptured Bowel Caused by Cyst. By T. F. Moyle.....	399
753	Pyæmic Abscess in Lumbar Region, Causing Peritonitis and Death in a Colt Two Months Old. By T. F. Moyle.....	400
759	Worms in the Appendix of a Puppy. By N. B. Rhodes.....	476
61	New Treatment for Parturient Apoplexy. By Francis Abele, Jr.....	477
63	Large Calculus from a Mare Without Ceasing Work. By Wm. Jakeman	478
69	Grafting Dog Skin on Shetland Pony. By George Cohen.....	479
13	Valvular Disease of the Heart in the Horse. By Francis Abele, Jr....	479
29	Urethral Calculus. By S. R. Howard	561
37	Two Cases of Typhoid in the Horse. By C. W. Heitzman.....	561
4	Rupture of the Liver. By W. J. Martin.....	562
5	A Case of Azoturia. By Robert W.	
8	Ellis.....	558
	The Spermatic Cord Twisted Around the Colon. By A. F. Abbott.....	564
	Hernia of the Small Intestine through the Mesentery. By R. C. Jenks..	565
	Fracture in Utero. By H. D. Fenimore.....	566
	Extracts from Clinical Records of the American Veterinary College Hospital. By Chas. E. Clayton. Another Case of Rupture of the Coraco-Radialis—Osteo-Porosis; To Add to the Value of Median Neurectomy; Epileptiform Fits Due to Parasites.....	623
	The Use of Eserine in Parturient Apoplexy. By W. E. McCray.....	626
	Punctured Wound in the Breast, with a Peculiar Complication. By Charles S. Atchison.....	627
	Intussusception of Small Intestine of Colt — Operation — Recovery. By E. Mayhew Michener.....	702
	A Post-Mortem Examination Well Worth the Trouble. By C. Henry Doepel.....	794
	Is It Hog Cholera? By J. A. McCrank.....	705
	Cattle Poisoning. By J. A. McCrank	707
	Purpura Treated by Antistreptococcus Serum. By W. G. Hollingworth..	708
	Vesico-Rectal Fistula. By J. D. Sturm	709
	Amputation of Penis in Twenty-three-Year-Old Gelding. By James M. Reed.....	710
	A Dental cyst at the Base of the Ear. By E. C. Walker.....	712
	Phlegmonous Erysipelas. By John L. Tyler.....	773
	Bronchocele Successfully Treated in the Dog. By J. B. Hollenback .	775
	General Fatty Degeneration of the Muscular System. By E. L. Volgenau.....	839
	Lymphangitis and Hypertrophied Hoof from Calking. By W. L. West	840
	Sanmetto in Canine Cystitis. By G. L. Barnaby.....	841
	Removal of the Premaxilla By J. A. McCrank.....	843

## EXTRACTS FROM EXCHANGES.

## GERMAN REVIEW—

A New Foetal Organ.....	187
Discovery of the Bacillus of Foot-and-Mouth Disease.....	188
Another Germ Supposed to be the	

Specific Cause of Foot-and-Mouth Disease.....	189
Contribution to the Treatment of Tetanus by Tetanus Antitoxin ..	267
The Danger Attending the Use of	

Meat of Tuberculous Animals . . . . .	269
Researches Upon the Origin of Human Diphtheria from Poultry . . . . .	336
Koch's New Tuberulin . . . . .	337
Brain Abscess in the Horse . . . . .	338
Hyperæmia of the Spleen in Sheep as a Means of Diagnosis of Forced Fattening of Animals before Slaughter . . . . .	338
The Probable Identity of the Bacteria of Aphthous Stomatitis of Human Beings and of Foot-and-Mouth Disease of Cattle . . . . .	415
Urticaria in Swine . . . . .	415
Hydromatia in a Non-Pregnant Cow	416
Eclampsia in a Bitch . . . . .	567
Bronchial Croup in the Ox . . . . .	567
The Treatment of Lumbago Gravis of the Horse with Sodium Bicarbonate . . . . .	568
A Warning Against Koch's New Tuberulin . . . . .	568
Intravenous Injection of Normal Salt Solution in Toxæmias and Extensive Hæmorrhages . . . . .	632
Cleft Palate in Stallion . . . . .	633
Passage of a Tracheotomy Tube into the Trachea . . . . .	633
Lipoma in a Terrier . . . . .	634
Uræmia in a Dog . . . . .	634
Value of Neurectomy . . . . .	715
Fatal Panophthalmitis in the Horse	715
Tetanus Antitoxin in the Horse . . . . .	715
Internal Medication of Chronic Nasal Discharge with Iodide of Potash	775
Ulcerated Endocarditis of Biliary Origin in the Horse . . . . .	776
Morbus Maculosus in a Dog . . . . .	777
Treatment of Chronic Obstipation with Beech-Wood Creosote . . . . .	843
A New Treatment for Chronic Lameness of the Shoulder . . . . .	844
Oleum Cannabis as a Galactifuge . . . . .	844
The Value of Hydrastis Canadensis in Bronchial Catarrh . . . . .	845
 ENGLISH REVIEW—	
Tetanus Treated by Tetanus Antitoxin . . . . .	55
Masticatory Paralysis in a Dog . . . . .	55
Scrotal Hernia in Foals . . . . .	112
Fistula of the Œsophagus . . . . .	113
Enlargement of the Prostate Treated by Castration . . . . .	192
"X Rays" in Canine Surgery . . . . .	192
Hæmatoma of the Ear . . . . .	193
Burns Treated by Iodine . . . . .	193
An Abnormal Median Nerve . . . . .	194
Lead Poisoning . . . . .	195
Follicular Mange . . . . .	338
Uterine Fibrous Tumor . . . . .	339
Tumor in the Brain of a Dog . . . . .	339
Foreign Body in the Stomach . . . . .	340
Docking of Horses . . . . .	416
Acute Bronchorrhœa . . . . .	417
Verminous Aneurism of the Posterior Mesenteric and External Iliac, with Rupture of the Latter . . . . .	417
Canine and Feline Surgery . . . . .	417
Hernia in Dogs . . . . .	492
Needle in the Œsophagus of a Dog	493
Two Cases of Orchitis in the Dog . . . . .	493
Ovariectomy and Vaginal Tumors . . . . .	494
Interesting Fractures . . . . .	634
Tuberculosis in Pigs . . . . .	635
Tetanus and Antitetanic Serum . . . . .	635
A Hat-Pin in the Œsophagus . . . . .	636
Lameness Due to Hypertrophy of the Lower End of the Small Metacarpal Bones . . . . .	636
Neck of Glass Bottle Lodged in Larynx . . . . .	849
Ovarectomy in a Monkey . . . . .	850
Multiple Fracture of the Pelvis . . . . .	850
Glanders in England . . . . .	850
Fractured Rib with Perforation of Thorax in a Cow . . . . .	851
 FRENCH REVIEW—	
Treatment of Gangrenous Swellings by Intra-Muscular Injections of Cresyld Water . . . . .	56
Lympho-Sarcoma at the Entrance of the Chest in a Cow . . . . .	111
Radical Treatment of Umbilical and Ventral Hernias in Animals . . . . .	112
Abscess of the Pelvis and Polyneuritis in a Mare . . . . .	189
Metrorrhagia in a Heifer . . . . .	190
Lupinosis of the Horse Resembling Glanders—Usefulness of Malleine	191
Stomacheal Indigestion in the Horse	273
Œsophageal Obstructions . . . . .	27
Cryptorchidy . . . . .	273
Plantar Neurotomy . . . . .	274
Foreign Body in the Pharynx of a Cow . . . . .	274
Amyotrophy of the Antea and Postea Spinatus (Sweeny) by Contusions of the Subscapular Nerve . . . . .	275
Wound, Exfoliation and Transversal Section of the Extensors of the Phalanges of the Right Hind Leg	275
Contribution to the Study of Capped Hock . . . . .	276
Calcareous Cystitis . . . . .	340
Prevention of the Umbilical Infections of New-Born Animals . . . . .	341

Intestine  
Abdomen  
Hæmatoma  
Strangulated hernia  
Accidents  
Pharynx  
Chronic disease  
Episodic disease  
Rupture  
the rectum  
xanthomatosis  
ternary syphilis  
Rupture of the rectum  
in a horse  
Parotitis  
Epizootic disease  
of the trachea  
Trachea  
Second branch  
Diaphysis  
Exostosis  
Facial nerve  
Periorbital  
Artery  
—Ergot  
Chorea  
Infectious disease  
Iodide  
Poison  
Volvulus  
Rupture  
Cardiac  
of the heart  
Posterior  
The Ingang  
eignement  
structure  
Hypertrophy  
eriosis  
in a horse  
Abnormalities  
in a dog  
Purulent disease  
Endocrinology  
Infectious disease  
Tempo  
DUTCH  
Vesical  
Uterine  
Treatment  
Trichomoniasis  
Palatine  
RUSSIAN  
Gemelli  
Cribbin

338	Intestinal Perforation in a Mule— Abdominal Abscesses—Splenic Hæmorrhage—Peritonitis . . . . .	489
339	Strangulation of the Intestines by the Peduncle of a Lipoma . . . . .	489
340	Accidental Laceration of the Oeso- phagus . . . . .	490
416	Picric Acid as a Dressing for Wounds . . . . .	490
417	Chronic Amaurosis and Temporary Epistaxis . . . . .	491
417	Rupture of the Internal Insertion of the Cap of the Perforatus and Lu- xation of the Tendon on the Ex- ternal Face of the Hock . . . . .	491
492	Rupture of the Anterior Vena Cava in a Horse . . . . .	568
493	Parotid Salivary Calculi . . . . .	569
493	Epizootic Cerebro-Spinal Meningitis of Ovines . . . . .	569
494	Tracheotomy Tube in the Trachea— Second Operation . . . . .	570
634	Diaphragmatic Hernia in a Horse . . . . .	570
635	Exostosis of the Left Side of the Face . . . . .	570
935	Periaortic Encephaloid Sarcoma— Arteritis—Ossification of the Aorta —Embolism of the Iliac . . . . .	778
936	Chorea of the Diaphragm of a Cow . . . . .	779
536	Infectious Hepatitis of Young Pigs . . . . .	78c
849	Iodide of Potassium in Strychnia Poisoning . . . . .	780
350	Volvulus in a Horse—Post-Mortem Rupture of the Stomach . . . . .	845
350	Cardial Dilatation with Insufficiency of the Orifices—Rupture of the Posterior Vena Cava . . . . .	846
351	The Influence of the Nature of For- eign Body in the Intestinal Ob- struction of Dogs . . . . .	846
56	Hypertrophy of the Prostate and Urineal Hernia of the Bladder in a Dog . . . . .	847
11	Abnormal Retention of the Fœtus in a Cow . . . . .	847
12	Purulent Infection following Chronic Endometritis . . . . .	848
89	Infectious Paraplegia . . . . .	848
90	Temporary Deafness in a Horse . . . . .	849
91	DUTCH REVIEW—	
73	Vesical Calculus in a She Ass . . . . .	195
7	Uterine Fistula . . . . .	195
73	Treatment of Dog Distemper by the Trichloride of Iodine . . . . .	196
74	Palatine Fistulae in Cattle . . . . .	196
75	RUSSIAN REVIEW—	
76	Gemellar Gestation in a Mare . . . . .	196
40	Cribbing in a Five Months Colt . . . . .	196
41	Double Cæcum in a Cow . . . . .	197
	Echinococcus on the Mitral Valve . . . . .	197
	Tetanus Cured by Subcutaneous In- jections of Lughol (?) Solution . . . . .	197
	BELGIAN REVIEW—	
	Extra-Uterine Gestation in Cows . . . . .	270
	Tearing of the Sesamoid Ligaments and of those of the Interphalan- geal Joints . . . . .	271
	Pelvic Abscess in a Horse . . . . .	344
	Prolapsus Uteri and Its Treatment —A New Apparatus . . . . .	345
	Pancreatic Diabetes in a Dog . . . . .	346
	Some Remarks upon Anæsthesia of Horses . . . . .	346
	Pulmonary Emphysema—Its Treat- ment . . . . .	347
	Canine Pathology . . . . .	853
	Contracture of the Anterior Legs in a Colt . . . . .	854
	Torsion of the Mesentery a Cause of Intestinal Obstruction in a Dog . . . . .	854
	Laparo-Gastrotomy and Extraction of a Foreign Body in a Dog . . . . .	855
	ITALIAN REVIEW—	
	Serotherapy in the Infectious Pleuro-Pneumonia of Horses . . . . .	341
	Tetanus Cured by Phenic Acid . . . . .	342
	Angioma of the Glans Penis . . . . .	342
	Fibroma of the Left Flank of a Horse . . . . .	342
	Fungoid Growths of Enormous Di- mensions on Both Spermatic Cords of a Horse . . . . .	343
	Rays in X and Experimental Tuber- culosis . . . . .	343
	Successful Oesophagotomy . . . . .	571
	Large Rectal Abscess . . . . .	571
	Voluminous Connectiva in a Dog . . . . .	572
	Cold Abscesses of the Mastoido- Humeralis . . . . .	573
	Abortion in a Cow—Seven Fœtuses . . . . .	851
	Stenosis of the Prepuce Resulting from Acrobystitis and Shortness of the Penis in a Horse . . . . .	851
	Trauma of the Heart in a Cow . . . . .	852
	A Queer Treatment for Indigestion in Cattle . . . . .	852
	Sulfuret of Carbone and Bots . . . . .	852
	AMERICAN REVIEW—	
	Intravenous Injection of Artificial Blood Serum for the Relief of Toxæmia and Extensive Hæmorr- hages . . . . .	277
	Operation of Arytenectomy Assisted by Electrical Lamp . . . . .	278

Cat with Two Spleens.....	347	trophy of the Retractor Muscles of the Penis of a Bull.....	717
Traumatic Pericarditis in a Cow ..	347	ROUMANIAN REVIEW—	
Tetanus in a Cat.....	348	Some Researches in Urethane.....	494
Intestinal Hernia through Great Omentum in a Colt.....	348	Muscular Atrophy and Articular Pains.....	495
Subcutaneous Injections of Iodine for Spavin and Ringbone.....	348	SPANISH REVIEW—	
Potassium Iodide for Champignon.....	716	Indigestion and Copræstasis.....	780
Spasmodic Contractions with Hyper-		Three Clinical Cases.....	781

## THERAPEUTICAL REVIEW.

Creosote in Chronic Constipation.....	855	Barium Chloride in Tympanites in Cattle.....	855
Mixture Against Tapeworm.....	855	Mixture for Local Anæsthesia.....	856
To Overcome Tetanic Contractions of the Uterus during Labor.....	855	Treatment of Mange in the Dog.....	856

## REVIEW OF BIOLOGY.

Parathyroid Function.....	279	Virulence of Muscles in Tuberculous Man.....	280
Thyroid Function.....	280		

## CORRESPONDENCE.

Sale of Veterinary Degrees—Prof. Law Explains.....	351	Supplied by the Government.....	640
The Future of the Veterinary Profes- sion.....	352	As to the Next Meeting Place of the U. S. V. M. A.....	717
The Anæsthetic Uses of Chloroform and Cocaine.....	420	A "Caustic" Communication from the Accredited Creator of the "Cavalry Caustic.".....	720
Practicing in New York State While Living in Another State—Answer to a Correspondent.....	421	Are there Such Things as "Fake Case Reports"?.....	783
"Couldn't Fool the Farmers.".....	422	An Original Method of Reducing Eversion of the Uterus.....	785
Docking Horses for Fashion's Sake..	495	Army Veterinary Surgeons.....	786
As to the Treatment of Eversion of the Uterus.....	575	Dr. Butler Announces the Next Meet- ing Place of the U. S. V. M. A....	786
As to the Free Biological Products		Veterinary Legislation in New York..	859

## VETERINARY COLLEGE NEWS.

Commencement Exercises American Veterinary College.....	61	Veterinary College.....	204
Commencement Exercises New York College of Veterinary Surgeons.....	139	Commencement Exercises New York State Veterinary College.....	281
Commencement Exercises Ontario Veterinary College.....	139	Announcement American Veterinary College.....	349
Commencement Exercises United States College of Veterinary Sur- geons.....	141	Announcement New York State Veterinary College.....	350
Commencement Exercises Kansas City Veterinary College.....	141	Announcement University of Penn- sylvania (Veterinary Department)..	350
Commencement Exercises Indiana Veterinary College.....	142	Announcement McGill University (Faculty of Comparative Medicine and Veterinary Science).....	419
Commencement Exercises McKillip Veterinary College.....	142	Announcement Kansas City Veteri- nary College.....	419
Commencement Exercises Chicago		Announcement New York College of Veterinary Surgeons.....	419

Diseases  
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Veterina  
Patholog  
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717  
494  
495  
780  
781  
  
855  
856  
856

## BIBLIOGRAPHY.

Diseases of the Dog and their Treatment.....	205	Session 1897.....	636
Veterinary Ophthalmology.....	206	Supplement au Nouveau Dictionnaire Pratique de Médecine, Chirurgie et Hygiène Veterinaire.....	638
Pathologie Interne des Animaux Domestiques.....	266	A Text-Book of Horse-Shoeing.....	638
Bureau of Animal Industry, Reports for 1895 and 1896.....	266	Exercises in Equine Surgery.....	639
Formulaire des Veterinaires Practiciens.....	335	Diseases of Swine.....	639
Sixth Biennial Report of the State Veterinarian of Michigan.....	336	Breeding Race-Horses by the Figure System.....	787
Proceedings of the United States Veterinary Medical Association,.....		The Veterinarian's Visiting List.....	788
		Practical Toxicology for Physicians and Students.....	788
		Veterinary Blue Book.....	862

## OBITUARY.

J. D. Rutherford, M. D., V. S. ....	62	Alexander W. Stein, M. D. ....	721
John R. Hart, V. M. D. ....	143	C. C. Tietjens, D. V. S. ....	722
Lucian T. Bell, M. D., D. V. S. ....	144	John H. Adamson, M. D. C. ....	722
John Doris, Jr., D. V. S. ....	145	A. L. Hummel, M. D. ....	723
Daniel Walsh. ....	145	Oscar E. Busener, D. V. S. ....	788
William Heyser Harbaugh, V. S. ....	567	Carlisle N. Darke, D. V. S. ....	789
Edward Loomes, V. S. ....	577	J. J. Shoemaker, D. V. S. ....	789
James Johnstone, D. V. S. ....	577	Samuel E. Queen, V. S. ....	856
Finlay Dun, M. R. C. V. S. ....	641		

## SOCIETY MEETINGS.

Veterinary Medical Association of New York County....	63, 207, 209, 288, 518, 583, 656, 729, 797, 887	Veterinary Medical Society of New Jersey and Vicinity.....	215, 289
Illinois State Veterinary Medical Association.....	64, 730	Pennsylvania State Board of Veterinary Medical Examiners.....	216, 660
Massachusetts Veterinary Association.....	65, 216, 585, 658, 734, 800, 893	New York State Veterinary Medical Society.....	359, 433, 577, 732
Maine Veterinary Medical Association.....	66, 427	Missouri Valley Veterinary Medical Association.....	359, 584, 732, 800
Minnesota State Veterinary Medical Association.....	66, 67, 361, 428, 796	Association of Veterinary Faculties of North America.....	360, 513
Pennsylvania State Veterinary Medical Association.....	68, 114, 432, 641, 891	United States Association of Experiment Station Veterinarians.....	360
Iowa State Veterinary Medical Association.....	123, 734, 880	Virginia State Veterinary Medical Association.....	423
Ohio State Veterinary Medical Association.....	127, 735	Colorado State Veterinary Medical Association.....	430
Veterinary Medical Association of New Jersey.....	132, 659	Veterinary Association of the District of Columbia.....	431, 581
Chicago Veterinary Society.....	133, 209, 287, 727, 864	Indiana State Veterinary Association.....	517
Alumni Association of the American Veterinary College.....	134	Tennessee Veterinary Medical Association.....	67, 586
United States Veterinary Medical Association.....	137, 216, 286, 355, 498, 588, 789, 892	Ontario Veterinary Alumni of Massachusetts.....	587
Keystone Veterinary Medical Association.....	211, 282, 515, 585, 654, 725, 790, 891	Montreal Veterinary Medical Association.....	588, 652, 723
		California State Veterinary Medical Association.....	650, 885
		Veterinary Medical Society of the Ontario Veterinary College	657, 733, 798, 890

North Carolina Veterinary Medical Association.....	67, 658	Wisconsin Society of Veterinary Graduates .....	800
Genesee Valley Veterinary Medical Association.....	659, 735	Regular Class of Veterinary Surgeons. ....	799
Ontario Veterinary Association .....	793	Veterinary Medical Society of the University of Pennsylvania.....	889

## MISCELLANEOUS.

News and Items ...	68, 145, 217, 290, 361, 434, 518, 589, 669, 735, 796, 893	Rectal and Vaginal Irrigator.....	334
Veterinary Legislation.....	57	"Dropped Elbow" in the Horse....	411
A New Universal Float.....	60	Prevention of Splenetic Fever.....	573
A Year's Progress in Medicine.....	198	Will Wear Stripes.....	574
The Procession of Modern Veterinarians .....	202	Inoculations Against Rinderpest.....	629
A Horse Becomes a "Ravin Mo-niack".....	203	Foot-and-Mouth Disease.....	631
Portland (Me.) Milk Regulations....	217	To Improve Philadelphia's Meat Supply .....	713
The Tuberculin Test in Massachusetts.....	258, 322, 402, 480	A Fire Department Veterinary Hospital .....	781
Minnesota's Amended Veterinary Law.....	281	A Movable-Calk Anti-Slipping Shoe..	783
		Career and Direful Fate of Veterinary Surgeon Peas.....	857

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ns. 799  
ni-  
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.. 411  
.. 573  
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.. 857